

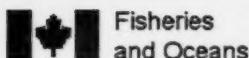
# **Queen Charlotte Sound Groundfish Bottom Trawl Survey, July 5th to August 9th, 2004**

N. Olsen, G.D. Workman, and R.D. Stanley

Science Branch, Pacific Region  
Fisheries and Oceans Canada  
Pacific Biological Station  
Nanaimo, BC  
V9T 6N7

2007

**Canadian Manuscript Report of  
Fisheries and Aquatic Sciences 2783**



Fisheries  
and Oceans

Pêches  
et Océans

Canada

## **Canadian Manuscript Report of Fisheries and Aquatic Sciences**

Manuscript reports contain scientific and technical information that contributes to existing knowledge but which deals with national or regional problems. Distribution is restricted to institutions or individuals located in particular regions of Canada. However, no restriction is placed on subject matter, and the series reflects the broad interests and policies of Fisheries and Oceans Canada, namely, fisheries and aquatic sciences.

Manuscript reports may be cited as full publications. The correct citation appears above the abstract of each report. Each report is abstracted in the data base *Aquatic Sciences and Fisheries Abstracts*.

Manuscript reports are produced regionally but are numbered nationally. Requests for individual reports will be filled by the issuing establishment listed on the front cover and title page.

Numbers 1-900 in this series were issued as Manuscript Reports (Biological Series) of the Biological Board of Canada, and subsequent to 1937 when the name of the Board was changed by Act of Parliament, as Manuscript Reports (Biological Series) of the Fisheries Research Board of Canada. Numbers 1426 - 1550 were issued as Department of Fisheries and Environment, Fisheries and Marine Service Manuscript Reports. The current series name was changed with report number 1551.

## **Rapport manuscrit canadien des sciences halieutiques et aquatiques**

Les rapports manuscrits contiennent des renseignements scientifiques et techniques qui constituent une contribution aux connaissances actuelles, mais qui traitent de problèmes nationaux ou régionaux. La distribution en est limitée aux organismes et aux personnes de régions particulières du Canada. Il n'y a aucune restriction quant au sujet; de fait, la série reflète la vaste gamme des intérêts et des politiques de Pêches et Océans Canada, c'est-à-dire les sciences halieutiques et aquatiques.

Les rapports manuscrits peuvent être cités comme des publications à part entière. Le titre exact figure au-dessus du résumé de chaque rapport. Les rapports manuscrits sont résumés dans la base de données *Résumés des sciences aquatiques et halieutiques*.

Les rapports manuscrits sont produits à l'échelon régional, mais numérotés à l'échelon national. Les demandes de rapports seront satisfaites par l'établissement auteur dont le nom figure sur la couverture et la page du titre.

Les numéros 1 à 900 de cette série ont été publiés à titre de Manuscrits (série biologique) de l'Office de biologie du Canada, et après le changement de la désignation de cet organisme par décret du Parlement, en 1937, ont été classés comme Manuscrits (série biologique) de l'Office des recherches sur les pêches du Canada. Les numéros 901 à 1425 ont été publiés à titre de Rapports manuscrits de l'Office des recherches sur les pêches du Canada. Les numéros 1426 à 1550 sont parus à titre de Rapports manuscrits du Service des pêches et de la mer, ministère des Pêches et de l'Environnement. Le nom actuel de la série a été établi lors de la parution du numéro 1551.

Canadian Manuscript Report of  
Fisheries and Aquatic Sciences 2783

2007

QUEEN CHARLOTTE SOUND GROUNDFISH BOTTOM TRAWL SURVEY,  
JULY 5<sup>TH</sup> TO AUGUST 9<sup>TH</sup>, 2004

by

N. Olsen, G.D. Workman, and R.D. Stanley

Fisheries and Oceans Canada  
Science Branch, Pacific Region  
Pacific Biological Station  
Nanaimo, British Columbia  
V9T 6N7

©Her Majesty the Queen in Right of Canada, 2007  
Cat. No. 97-4/2783E ISSN 0706-6473

Correct citation for this publication:

Olsen, N., Workman, G.D., and Stanley R.D. 2007. Queen Charlotte Sound groundfish bottom trawl survey July 5<sup>th</sup> to August 9<sup>th</sup>, 2004. Can. Manuscr. Rep. Fish. Aquat. Sci. 2783: vi + 60 p.

## Table of Contents

Abstract .....	v
Résumé .....	vi
Introduction .....	1
Methods .....	2
Vessel and Fishing Gear .....	2
Staff Summary .....	2
Survey Design .....	2
Operations .....	2
Fishing .....	2
Gear and Oceanographic Sensors .....	4
Catch Processing .....	4
Biological Sampling .....	4
Results .....	5
Fishing .....	5
Catch .....	5
Samples and Specimens .....	5
Gear and Oceanographic Sensors .....	6
References .....	6
Appendix A: Bridge Log .....	27
Appendix B: Catch by Tow .....	33

## List of Tables

Table 1. Net specifications .....	7
Table 2. Survey personnel for each leg of the survey .....	8
Table 3. Definition of survey strata with the target tow allocation and the total area in each .....	9
Table 4. Mean warp length and scope by depth interval .....	9
Table 5. Summary of survey operations .....	10
Table 6. Catch broken down by species groups .....	10
Table 7. All captured species showing number of tows in which the species occurred, total catch weight, maximum and mean per-tow catch weight, and relative abundance and relative error from bootstrapped area expanded estimates .....	11

Table 8. Offloaded catch weight by species .....	15
Table 9. Number of samples and number of recorded biological attributes per species sampled .....	16
Table 10. Numbers of samples and specimens by sample type and species.....	17
Table 11. Statistics of individual length and weight, and sex proportion by species .....	18
Table 12. Data collected from net sensors, showing the number of tows from which each data type was collected (total number of survey tows is 253). ....	19

## **List of Figures**

Figure 1. Location of Queen Charlotte Sound on the coast of British Columbia, Canada.	20
Figure 2. The commercial stern trawler F/V Viking Storm.....	20
Figure 3. The Queen Charlotte Sound study area showing area boundary, fishing closures, sponge reef protected areas, and depth contours. ....	21
Figure 4. Initial status of the sampling frame showing the 240 primary fishing locations.	21
Figure 5. Example tow tracks from 2004.....	22
Figure 6. Warp length versus starting depth. ....	22
Figure 7. The paths followed on each leg of the survey. ....	23
Figure 8. Final status of the sampling frame showing locations that were fished successfully (completed), rejected prior to fishing (rejected), or abandoned after one or more unsuccessful fishing attempts (failed). ....	23
Figure 9. Histogram of number of species caught per tow. ....	24
Figure 10. Histogram of catch weight per tow. ....	24
Figure 11. Seabird 39 temperature and depth profile from set number 15. The vertical lines indicate the start and end of net contact with the sea floor. ....	25
Figure 12. NMFS bottom contact sensor profile from set number 4. The vertical lines indicate the start and end of net contact with the sea floor. ....	26
Figure 13. Example plot of net sensor data. The solid dark area at the bottom represents the sea floor. The light grey line directly above that represents the net footrope (note the region indicated by the arrow, showing where the net has risen off the sea floor for a brief period). The top line indicates the net headrope. The symbols between the headrope and the footrope indicate where fish have entered the net. ....	26

## ABSTRACT

Olsen, N., Workman, G.D., and Stanley, R.D. 2007. Queen Charlotte Sound groundfish bottom trawl survey July 5<sup>th</sup> to August 9<sup>th</sup>, 2004. Can. Manusc. Rep. Fish. Aquat. Sci. 2783: vi + 60 p.

A bottom trawl survey of Queen Charlotte Sound and southern Hecate Strait was conducted on the fishing vessel F/V Viking Storm between July 5<sup>th</sup> and August 9<sup>th</sup>, 2004. The survey was jointly conducted and funded by the Canadian Groundfish Research and Conservation Society (CGRCS) and Fisheries and Oceans Canada (DFO), and was the second in what is intended to be a long-term and coordinated set of surveys that cover the continental and upper slope of the continental shelf of most of the British Columbia coast. The objective of these surveys is to provide fishery independent abundance indices of all demersal fish species available to bottom trawling, as well as to collect biological samples of selected species.

The survey conducted 240 successful tows from a total of 277. The mean catch per tow was 486 kg, averaging about 20 different species of fish and invertebrates each. The most abundant fish species encountered was Pacific ocean perch followed by spiny dogfish, arrowtooth flounder, and Pacific hake. Biological data, including individual length, weight, sex, maturity, and age were collected from 67 different species of fish. Oceanographic data and net geometry were also recorded for most tows, including water temperature, depth, headrope height, doorspread, and current velocity through the net.

## RÉSUMÉ

Olsen, N., Workman, G.D., and Stanley, R.D. 2007. Queen Charlotte Sound groundfish bottom trawl survey July 5<sup>th</sup> to August 9<sup>th</sup>, 2004. Can. Manusc. Rep. Fish. Aquat. Sci. 2783: vi + 60 p.

La Canadian Groundfish Research and Conservation Society (CGRCS) et Pêches et Océans Canada (MPO) ont financé et procédé conjointement à la réalisation d'un relevé au chalut de fond dans le bassin Reine-Charlotte et le sud du détroit d'Hécate du 5 juillet au 9 août 2004. Mené par le navire de pêche F/V *Viking Storm*, ce relevé est le deuxième d'une série prévue de relevés coordonnés à long terme du plateau continental et de la partie supérieure du talus de la majeure partie de la côte de la Colombie-Britannique. L'objectif de ces relevés est l'établissement d'indices d'abondance, indépendants de la pêche, de toutes les espèces de poissons démersaux capturables au chalut de fond et la collecte de données biologiques sur certaines espèces.

Des 277 traits de chalut, 240 ont été fructueux. Les prises moyennes par trait se chiffraient à 486 kg. Quelque 20 espèces différentes de poissons et d'invertébrés ont été prises en moyenne à chaque trait. Le sébaste à longue mâchoire était l'espèce la plus abondante; venaient ensuite l'aiguillat commun, la plie à grande bouche et le merlu du Pacifique. Des données biologiques (longueur, poids, sexe, stade de maturité et âge) ont été recueillies pour 67 espèces de poisson. Des données océanographiques (température de l'eau et profondeur) et des données sur la géométrie du chalut (hauteur de la ralingue supérieure, écartement des panneaux et vitesse du courant à travers le chalut) ont également été collectées pour la plupart des traits.

## **INTRODUCTION**

In 2003 a report by the Pacific Scientific Advice Review Committee (PSARC) recommended development of fishery independent relative abundance indices using bottom trawl surveys in British Columbia waters (Sinclair et al., 2003). As an initial step, it recommended that a pilot survey be conducted in PMFC major areas 5A and 5B (Queen Charlotte Sound, Figure 1). This region was recommended in part because it is not covered by other bottom trawl surveys and it represents a significant portion of the commercial bottom trawl fishery.

In February 2003, the Canadian Groundfish Research and Conservation Society (CGRCS) committed to funding the principal portion of the required vessel and net costs, and a significant portion of the scientific staff needed to conduct the survey and analyze the results. The Science Branch of Fisheries and Oceans, Canada (DFO) committed to funding additional scientific and sampling staff, and to provide the scientific sampling equipment.

The first groundfish bottom trawl survey of Queen Charlotte Sound was conducted from July 3<sup>rd</sup> to August 10<sup>th</sup>, 2003 (Olsen et al., 2007) and the second survey took place in 2004, between July 5<sup>th</sup> and August 9<sup>th</sup>. This document provides a brief synopsis of the second survey, including the methods used and data collected. It is not intended as a comprehensive review of the survey, nor does it provide interpretive analysis of the survey results. These topics will be covered in more detailed companion documents.

## METHODS

### VESSEL AND FISHING GEAR

The survey was conducted aboard the commercial stern trawler F/V Viking Storm (Figure 2). The trawl net used was an Atlantic Western IIA box trawl (Table 1) connected to 815 kg Thyboron 104 doors with 11 m door legs.

### STAFF SUMMARY

A total of 18 personnel were involved in the survey, which was split into 4 sections or “legs”, each of about 9 days in duration with 10 staff in each. The Canadian Groundfish Conservation and Research Society (CGCRS) funded employees of Leader Fishing Ltd. and Archipelago Marine Research Ltd. (AMR). All other staff were funded by Fisheries and Oceans Canada (DFO) (Table 2).

### SURVEY DESIGN

The study area consists of all of Queen Charlotte Sound and the southern part of Hecate Strait, excluding near-shore waters and inlets, areas closed to fishing, and protected sponge reef areas (Figure 3). The southern portion of Hecate Strait was included in order to provide coverage contiguous with the Hecate Strait groundfish bottom trawl survey. We split the study area into two spatial strata, creating northern and southern regions that split along Mitchell and Reed Troughs. In addition to these areal strata we divided the study area into four depth strata, creating a total of eight strata (Table 3).

We divided the survey area into a contiguous grid of 4 km<sup>2</sup> blocks and from these blocks we randomly selected 240 primary fishing locations (Figure 4). Allocation of locations across strata was modified from the scheme used in 2003; in 2004 we selected more locations in the shallowest strata. We felt that this would reduce observation error for the many shallow-living species while having a minimal impact on observation error for the deeper water species.

In 2003 we selected an additional 80 locations to be used as secondary locations in the event that we were not able to fish a primary location. However, this method resulted in unacceptably long travel times between locations near the end of the survey. Thus, in 2004 we developed alternate methodologies (discussed below) for selecting secondary locations.

### OPERATIONS

#### Fishing

Fishing commenced at sunrise and ended at sunset each day. This yielded an average working day length of 15.5 hours, starting at approximately six o’clock in the morning and ending at about nine thirty in the evening.

On each day prior to fishing, the captain and chief scientist reviewed the list of primary fishing locations to determine a candidate set of locations to visit throughout the

day. During this review process the captain would sometimes determine, based on his experience and knowledge of an area, that one or more locations were not fishable. In such cases we would mark the locations as “rejected based on prior knowledge” and replace them with secondary locations.

In 2003 we had pre-selected 80 secondary locations to be used throughout the survey. However, by the end of that survey, as the number of secondary locations became low, we were inevitably faced with a situations in which all available secondary locations were unacceptably far away from the rejected primary and thus, we were forced to adopt an ad-hoc approach to selecting secondary locations. To avoid this situation in 2004, we developed a set of algorithms for selecting secondary blocks as they were required throughout the survey. The principle method involved replacing the primary location with a randomly selected location within the same stratum and within a given radius of the rejected location (3 km, by default). An alternate method allowed us to randomly select a location from a defined group of locations.

We frequently began fishing immediately on arrival at a fishing location. However, if the captain was not familiar with an area we would “sound” the region (traverse the location and examine the depth sounder trace) to determine if it was suitable for trawling. If it was not, we marked the location and “rejected based on inspection” and selected a secondary location.

When trawling, the captain would attempt to tow through the center of the  $4 \text{ km}^2$  fishing block, usually following a depth contour. However, where the bottom topography made this difficult or impossible, the captain would trawl wherever he felt he could obtain a successful result, with the stipulation that at least half of the total trawl track had to be within the  $4 \text{ km}^2$  block (Figure 5). The scope used in 2004 is shown in Figure 6 and Table 4.

To determine the start of each 20 minute tow, we monitored the real-time net sensor data to establish when the net reached the sea floor and the headrope collapsed to a height of about three to four meters, at which point we considered the net to be actively fishing. Nineteen minutes after the start of the tow, we retrieved the net. Retrieval was done one minute early because slack in the warps creates a lag of about one minute before the net leaves the bottom. Although our target on-bottom time was 20 minutes, we accepted tows that were at least 15 minutes in length. This was a pragmatic decision that allowed us to retain many tows that would otherwise have been failures due to hang-ups or early haul-backs.

The result of trawling was either a successful tow, or a hang-up or tear-up of the trawl net. In the event of a hang-up or tear-up, we would either mark the location as “Rejected after one or more attempts to fish” or make additional attempts to fish. Thus, we kept records of the three scenarios that resulted in a location being removed from the sampling frame:

- Rejection based on prior knowledge
- Rejection based on on-ground inspection
- Rejection based on one or more failed fishing attempts

This was an improvement over 2003 when we only kept track of locations that were “rejected” (either by prior knowledge or by on-ground inspection) or “aborted” after a fishing attempt.

Rejected locations were removed from the sampling frame for the current survey but were not removed indefinitely from possible selection in future surveys. Instead, we opted for a “three strikes” rule, which stipulates that a location must be rejected on three separate surveys before we permanently remove it as a candidate fishing location. This was done in part to avoid a “captain effect” that might arise from variations in local knowledge and skill.

### **Gear and Oceanographic Sensors**

The trawl net was equipped with a variety of real-time sensors including temperature, depth, doorspread, current velocity, and headrope height. These sensors transmitted data to a bridge computer once per second and allowed us to continually monitor the net during fishing. In addition to these real-time sensors, we also attached data-logging probes to collect water temperature and pressure/depth (Seabird 39) and contact of the trawl net with the sea floor (NMFS Bottom Contact Sensor). Data from these logging probes were downloaded twice per day, once at midday and once at the end of the day.

### **Catch Processing**

Codend contents were dumped into a raised rectangular sorting bin approximately three meters long by two meters wide. Any catch that did not fit into the sorting bin was dumped into a spillway aft of the bin. We completely sorted and weighed the catch to species, except in rare instances when the catch was too large to be sorted in a reasonable amount of time. In these cases we obtained the captain’s estimate of total weight, then sorted and weighed all but the dominant species, which was then obtained by subtraction.

### **Biological Sampling**

While the primary purpose of this survey was to generate fishery independent indices of relative abundance, our second goal was to collect associated biological information on the size, sex, and age composition of selected species. In particular, our biological sampling priorities were to collect length and sex frequencies on all species in the catch of each tow (subject to a minimum number of specimens criteria), to collect representative samples of specimen length and weight, and to collect age samples for select species.

We selected age samples from the dominant (by weight) catch in each tow, as well as certain species deemed high priority due to concerns over stock status (for example, Bocaccio, lingcod, and Pacific cod). Otoliths (calcareous accretions of the inner ear) were collected from rockfish and flatfish species while fin clips were taken

from lingcod and Pacific cod. Both of these structures grow in a series of annular rings that can be counted to determine age.

## RESULTS

### FISHING

We divided the survey into four sections or "legs" of eight to ten days. This duration was short enough that we were able to retain a significant amount of the catch, which was sold at the end of each leg, and also allowed us to rotate the science crews to minimize fatigue. The overall pattern of each leg covered a longitudinal segment of Queen Charlotte Sound, starting in the east and moving progressively west with each leg. We imposed this pattern in order to minimize yearly bias resulting from changes in area/times fished (for example, fishing the western side of the sound first in one year vs. the eastern side the next). Our choice of an east to west direction was to avoid unintentionally tracking a fish stock, as some species are known to migrate from deeper to shallower water from July to August (Figure 7).

From a total of 35 survey days, 3.5 days were required for travel at the start and end of the survey, four days were required for offloading catch and changing crews, and 1.5 days were lost due to equipment failure. Thus, we ended with a total of 26 full fishing days in which time we conducted 277 tows, of which 240 were successful and 37 were unsuccessful due to hang-ups or tear-ups, for an average of 9.2 successful tows per fishing day, or 6.9 successful tows per survey day (Table 5).

The final status of the 2004 sampling frame includes 240 successfully fished locations, 11 locations rejected prior to fishing, based on the captain's knowledge, 64 locations rejected based on on-ground inspection, and 20 locations rejected after one or more failed fishing attempts (Figure 8).

### CATCH

Catch weight per tow was typically less than 1000 kg and on average, we observed about 15 to 25 species per tow (Figure 9 and Figure 10). We caught a total of 120,667 kg of fish and invertebrates. Most of this (118,892 kg) consisted of 128 different taxonomic groups of fish, including 31 rockfish taxa and 13 flatfish taxa. The remainder (1,775 kg) consisted of 122 invertebrate groups (Table 6). Of the fish species, Pacific ocean perch was the most dominant by weight, followed by spiny dogfish, arrowtooth flounder, and Pacific hake (Table 7). Significant amounts of the commercially viable fish catch, especially Pacific ocean perch, were offloaded with the proceeds helping to offset the costs of the survey (Table 8).

### SAMPLES AND SPECIMENS

We sampled 67 species of fish for attributes such as length, weight, sex, maturity, and age (Table 9, Table 10, and Table 11).

## **GEAR AND OCEANOGRAPHIC SENSORS**

We collected Seabird 39 data (water temperature and pressure/depth) from 237 of the 277 total tows (Table 12, Figure 11). Tows were missed for a variety of reasons including dead or detached batteries and operator error. Although we have not yet analyzed these data in detail, they may prove useful for explaining, or at least correlate to, short term anomalies in abundance trends. In addition, they provide a base reference for detecting future climate change.

We collected bottom contact data from the NMFS Bottom Contact Sensor for 268 of the 277 tows (Table 12). These data provide a record of the trawl net contact with the sea floor and thus are useful not only for determining the quality and quantity of the sea floor contact, but also indicate the relative rugosity of the sea floor. We used these data to determine the exact times that the trawl net first and last contacted the sea floor, thus providing an accurate measure of total bottom contact time (Figure 12).

Net sensor data, including doorspread, current velocity, and headrope height were collected from most tows but were unavailable from several tows due to equipment failure (Table 12, Figure 13).

## **REFERENCES**

- Olsen, N., Workman, G. D., and Stanley, R. D. 2007. Queen Charlotte Sound Groundfish Bottom Trawl Survey July 3rd to August 10th, 2003. Can. Manusc. Rep. Fish. Aquat. Sci. 2782: 58 p.
- Sinclair, A., Schnute, J., Haigh, R., Starr, P., Stanley, R. D., Fargo, J., and Workman, G. 2003. Feasibility of multispecies groundfish bottom trawl surveys on the BC coast. Can. Stock Assess. Sec. Res. Doc. 2003/049.

Table 1. Net specifications.

Part	Standard		Metric		Units	Material
	Length	Material	Length			
<b>Rigging</b>						
Sweep Line	90	7/8 cable	27.4	m	22 mm cable	
Upper bridle	90	3/4 cable	27.4	m	19 mm cable	
Lower bridle	90	7/8 cable	27.4	m	22 mm cable	
Door Legs	36	7/8 cable	11	m	22 mm cable	
Pickups	42	7/8 cable	12.8	m	22 mm cable	
Hook ups	8.8 t	BMMDV80	8 mt	mt	BMMDV80	
<b>Net frame</b>						
Headline	74.5	5/8 cable	22.7	m	16 mm cable	
Headline floats	90	8" plastic Spheres			200 mm plastic spheres	
Riblines		1" Polysteel rope			25 mm polysteel rope	
Bolsch Line	68.33	9/8" poly steel rope	20.8	m	29 mm polysteel rope	
Fishing Line	107.33	14 mm long link chain	32.7	m	14 mm long link chain	
<b>Foot Rope</b>						
Foot Rope	107.33	5/8 Chain 16 in Tire gear with 2 in Spacing	32.7	m	16 mm chain 400 mm tire gear with 50 mm spacing	
Foot rope bosom	14		4.3	m		
Root rope wing1	18.33	18" rock hopper, 18 " disks spaced 18 " apart	5.6	m	450 mm rock hopper 450 mm spacing	
Root rope wing2	8.83	18" rock hopper, 18 " disks spaced 18 " apart	2.7	m	450 mm rock hopper 450 mm spacing	
<b>Web</b>						
Belly	5"	3.5 mm Euroline	127	mm	3.5 mm Euroline	
Square	5"	3.5 mm Euroline	127	mm	3.5 mm Euroline	
Side Panel	5"	3.5 mm Euroline	127	mm	3.5 mm Euroline	
Taper	4.5"	3.5 mm Euroline	114	mm	3.5 mm Euroline	
Intermediate	4.5"	3.5 mm Euroline	114	mm	3.5 mm Euroline	
Codend	4.5"	3.5 mm Euroline	114	mm	3.5 mm Euroline	
Guard Mesh	4.5 or 5 "	Double 4.5 mm Euroline	114 or 127	mm	Double 4.5 mm Euroline	
Liner	3/4"	Notless Nylon	19	mm	Notless Nylon	

Table 2. Survey personnel for each leg of the survey.

<b>Leg</b>	<b>Dates</b>	<b>Person</b>	<b>Role</b>	<b>Affiliation</b>
1	July 5th to July 13th	Scott McLean	Captain	Leader Fishing
		Greg Workman	Chief Scientist	DFO
		Ed Choromanski	Science	DFO
		Norm Olsen	Science	DFO
		Lara Kardash	Science	AMR
		Jason Knowles	Science	AMR
		Russell Farrington	Fishing	Leader Fishing
		Mark Lafluer	Engineer	Leader Fishing
		Flo Salm	Fishing	Leader Fishing
		George Sim	Fishing	Leader Fishing
2	July 14th to July 22nd	Chris Roberts	Captain	Leader Fishing
		Rick Stanley	Chief Scientist	DFO
		Brian Krishka	Science	DFO
		Lara Kardash	Science	AMR
		Jason Knowles	Science	AMR
		Matthew McKay	Science	AMR
		Russell Farrington	Fishing	Leader Fishing
		Mark Lafluer	Engineer	Leader Fishing
		Flo Salm	Fishing	Leader Fishing
		George Sim	Fishing	Leader Fishing
3	July 23rd to August 1st	Chris Roberts	Captain	Leader Fishing
		Norm Olsen	Chief Scientist	DFO
		Mike Hamilton	Science	SFU
		Lara Kardash	Science	AMR
		Jason Knowles	Science	AMR
		Matthew McKay	Science	AMR
		Russell Farrington	Fishing	Leader Fishing
		Mark Lafluer	Engineer	Leader Fishing
		Paul Purston	Fishing	Leader Fishing
		George Sim	Fishing	Leader Fishing
4	August 2nd to August 9th	Chris Roberts	Captain	Leader Fishing
		Rick Stanley	Chief Scientist	DFO
		Ed Choromanski	Science	DFO
		Lara Kardash	Science	AMR
		Jason Knowles	Science	AMR
		Matthew McKay	Science	AMR
		Russell Farrington	Fishing	Leader Fishing
		Mark Lafluer	Engineer	Leader Fishing
		Paul Purston	Fishing	Leader Fishing
		George Sim	Fishing	Leader Fishing

Notes: AMR = Archipelago Marine Research

DFO = Fisheries and Oceans Canada

SFU = Simon Fraser University

Table 3. Definition of survey strata with the target tow allocation and the total area in each.

Areal Stratum	Depth Stratum Meters	Depth Stratum Fathoms	Target Tow Allocation	Usable Tows	Area (km <sup>2</sup> )
South	50 - 125	27 - 68	47	46	5,334
	125 - 200	68 - 109	49	49	5,873
	200 - 330	109 - 164	27	31	3,134
	330 - 500	164 - 273	8	8	625
<i>South Total</i>			131	134	14,966
North	50 - 125	27 - 68	21	20	2,279
	125 - 200	68 - 109	38	39	4,926
	200 - 330	109 - 164	43	40	4,688
	330 - 500	164 - 273	7	7	1,343
<i>North Total</i>			109	106	13,236
<b>Grand Total</b>			<b>240</b>	<b>240</b>	<b>28,202</b>

Table 4. Mean warp length and scope by depth interval.

Depth (m)	Mean Warp (m)	Mean Warp (fa)	Mean Scope	Mean Depth (fa)
50 - 100	292	160	3.8	42
100 - 150	385	211	3.1	68
150 - 200	473	259	2.8	94
200 - 250	614	336	2.7	122
250 - 300	712	389	2.6	150
300 - 350	811	443	2.5	176
350 - 400	1006	550	2.6	210
400 - 450	936	512	2.2	233
450 - 500	988	540	2.1	262

Table 5. Summary of survey operations.

Start: Depart PBS	July 5
End: Offload PBS	August 9
Fishing days	26
Travel (begin and end)	3.5
Offload days	4
Weather days	0
Breakdown	1.5
<b>Total days</b>	<b>35</b>
Total tows	277
Keeper tows	240
Unusable tows	37
Inspected un-fished blocks	53
Tows per day overall	6.9
Usable tows per fishing day	9.2
Mean catch per keeper tow	486
Mean species per keeper tow	20

Table 6. Catch broken down by species groups.

Species Category	Number of Taxa	Weight (Kg)
All Fish	128	118,892
Rockfish	31	54,958
Flatfish	13	29,945
Roundfish	9	13,454
Cartilaginous fish	9	19,935
Other fish	66	600
Invertebrates	122	1,775

Table 7. All captured species showing number of tows in which the species occurred, total catch weight, maximum and mean per-tow catch weight, and relative abundance and relative error from bootstrapped area expanded estimates.

Species	Number of Tows	Catch Weight (kg)			Relative Abundance	RE
		Total	Maximum	Mean		
Pacific ocean perch	154	24379.9	3961.5	164.7	15.837	0.20
Spiny dogfish	104	16661.2	12465.4	160.2	11.003	0.72
Arrowtooth flounder	222	15799.7	1511.2	72.1	10.365	0.18
Pacific hake	128	7561.1	2207.8	59.5	5.137	0.32
Silvergray rockfish	115	5339.7	724.1	46.8	3.832	0.19
Yellowmouth rockfish	57	5298.4	1685.9	100.0	3.441	0.46
Dover sole	170	3491.8	154.5	20.9	2.257	0.12
Rex sole	182	3086.0	170.5	17.2	2.052	0.12
Redstripe rockfish	64	2790.8	584.5	45.8	2.108	0.32
Yellowtail rockfish	41	2749.8	879.2	67.1	1.875	0.38
Spltnose rockfish	33	2701.8	744.5	64.4	1.716	0.47
Sharpchin rockfish	75	2670.5	1970.7	39.9	1.785	0.78
Sablefish	115	2197.1	375.9	19.1	1.558	0.23
Spotted ratfish	175	2163.3	523.5	12.8	1.441	0.24
Pacific cod	131	2136.8	413.3	16.8	1.489	0.26
Shortspine thornyhead	96	1869.5	152.0	19.5	1.149	0.11
Canary rockfish	39	1779.9	568.0	45.6	1.205	0.37
Southern rock sole	62	1718.7	509.2	27.7	1.152	0.37
Rougheye rockfish	67	1537.5	353.8	23.7	0.770	0.23
English sole	92	1483.1	166.9	17.0	1.032	0.21
Pacific halibut	79	1302.9	78.9	16.7	0.847	0.16
Flathead sole	61	1277.1	526.1	21.6	0.865	0.47
Pacific sanddab	51	1164.2	209.8	23.3	0.777	0.30
Lingcod	88	960.7	96.5	10.9	0.698	0.20
Redbanded rockfish	110	888.2	126.9	8.1	0.543	0.18
Longnose skate	81	748.7	48.2	9.2	0.482	0.14
Jellyfish	186	671.6	32.5	4.1	-	-
Walleye pollock	118	510.6	53.9	5.2	0.338	0.19
Widow rockfish	16	495.2	232.2	45.0	0.332	0.59
Petrale sole	78	482.2	67.7	6.3	0.344	0.21
Yelloweye rockfish	39	443.4	135.5	11.4	0.344	0.47
Bocaccio	15	418.6	321.2	27.9	0.261	0.71
Big skate	20	310.3	51.0	16.3	0.196	0.29
Greenstriped rockfish	68	303.5	37.5	4.5	0.207	0.19
Shortraker rockfish	12	276.7	67.0	23.1	0.171	0.34
Quillback rockfish	22	274.0	114.7	12.5	0.200	0.51
Harlequin rockfish	4	242.0	241.0	60.5	0.281	0.99
Darkblotched rockfish	23	236.4	67.7	10.7	0.160	0.39
Robust clubhook squid	52	232.0	28.1	4.5	-	-
Eulachon	31	190.6	121.6	7.3	0.133	0.67
Blackbelly eelpout	49	190.3	57.7	5.1	0.124	0.37
Gorgonian corals	13	147.2	50.1	16.4	-	-
Roseithorn rockfish	40	130.6	40.5	3.3	0.093	0.32
Sponges	64	123.1	27.2	2.7	-	-
Slender sole	102	114.5	11.8	1.3	0.073	0.16
Pink shrimp	30	81.3	38.3	3.5	-	-
Bath sponges	14	79.8	40.0	5.7	-	-
Anemone	51	73.5	22.5	3.5	-	-
Fragile urchin	103	71.0	5.0	1.0	-	-
Chum salmon	12	56.2	20.9	5.1	0.030	0.41
Longspine thornyhead	9	44.9	22.5	5.6	0.029	0.48
Glass sponges	10	43.1	15.9	6.2	-	-
Salp	87	37.4	15.4	3.1	-	-
Pacific herring	32	35.9	6.1	1.6	0.020	0.32
Wolf eel	6	35.6	11.3	5.9	0.015	0.53
Shortbelly rockfish	9	34.3	30.0	5.7	0.029	0.90
Pacific sand lance	43	32.5	18.7	3.0	0.023	0.66
Giant squid	2	31.3	19.7	15.6	-	-
Aleutian skate	4	25.8	7.4	6.5	0.019	0.51
Curlfin sole	24	25.0	4.6	1.0	0.016	0.29
Pacific tomcod	10	24.0	19.5	4.8	0.018	0.80
Kelp greenling	6	23.7	13.8	4.0	0.018	0.71
Pink shrimp (smooth)	56	23.4	6.1	1.5	-	-
Sidestripe shrimp	56	21.7	2.7	0.7	-	-

Table 7. Continued

Species	Number of Tows	Catch Weight (kg)			Relative Abundance	RE
		Total	Maximum	Mean		
Sandpaper skate	15	21.1	6.4	1.4	0.014	0.40
Bryozoa	5	21.1	14.0	4.2	-	-
Blackfin sculpin	30	18.3	6.8	0.8	0.012	0.47
Octopus	6	16.0	9.8	3.2	-	-
Stripetail rockfish	4	15.4	12.5	5.1	0.011	0.99
Black eelpout	33	15.3	9.0	1.1	0.008	0.62
Pygmy rockfish	23	15.2	2.9	0.9	0.010	0.37
Prawn	43	15.1	2.7	0.5	-	-
Sea cucumber	40	14.4	3.0	0.8	-	-
Bigmouth sculpin	4	14.2	6.3	3.5	0.013	0.60
Aurora rockfish	8	12.1	3.5	1.5	0.005	0.34
Threadfin sculpin	19	10.2	2.2	0.7	0.006	0.32
Metridium	4	10.1	3.4	2.5	-	-
Bigfin eelpout	14	7.3	1.1	0.6	0.005	0.27
Basket stars	33	7.3	2.5	0.7	-	-
Sunflower starfish	2	6.1	4.5	3.1	-	-
Pink scallop	18	5.9	2.5	1.5	-	-
Chinook salmon	1	5.8	5.8	5.8	0.004	1.00
Spinyhead sculpin	1	4.8	4.8	4.8	0.003	0.96
Jack mackerel	2	4.7	4.0	2.4	0.001	1.02
Whitespotted greenling	4	4.5	1.9	1.1	0.002	0.81
Wattled eelpout	10	4.4	2.3	0.6	0.003	0.51
Brown cat shark	1	3.7	3.7	3.7	0.002	0.95
Rockfishes	8	3.7	1.6	1.2	-	-
Spiny red sea star	13	3.5	1.2	0.4	-	-
White sea cucumber	15	3.4	0.8	0.4	-	-
Sea urchins	17	3.3	2.2	0.8	-	-
Glass shrimp	4	2.9	2.9	2.9	-	-
Brown box crab	1	2.9	2.9	2.9	-	-
Shrimp	3	2.3	2.3	2.3	-	-
Chub mackerel	1	2.3	2.3	2.3	0.001	1.04
Mud star	16	2.2	1.3	0.4	-	-
Blacktail snailfish	3	2.2	1.4	1.1	0.002	0.79
Vermilion rockfish	1	2.2	2.2	2.2	-	-
Opalescent inshore squid	31	1.9	1.8	1.0	-	-
All species	7	1.9	1.0	0.6	-	-
Starfish	35	1.9	0.8	0.4	-	-
Fish-eating star	13	1.8	0.6	0.4	-	-
Black rockfish	1	1.8	1.8	1.8	0.001	0.98
Heart urchins	12	1.6	0.6	0.3	-	-
Sea whip	24	1.4	0.5	0.2	-	-
Box crabs	1	1.3	1.3	1.3	-	-
Northern clingfish	1	1.3	1.3	1.3	0.001	0.95
Alaska skate	1	1.2	1.2	1.2	0.001	1.02
Cushion star	24	1.2	0.7	0.4	-	-
Orange sea cucumber	3	1.2	1.1	0.6	-	-
Sand star	7	1.1	0.8	0.4	-	-
Whitespotted sea cucumber	3	1.0	0.5	0.3	-	-
Calcareous sponges	1	1.0	1.0	1.0	-	-
Tiger rockfish	2	1.0	1.0	1.0	-	-
Hennicula asthenactis	2	1.0	1.0	1.0	-	-
China rockfish	1	0.9	0.9	0.9	-	-
American shad	2	0.8	0.7	0.4	0.000	0.85
Pacific bobtail squid	39	0.8	0.4	0.2	-	-
Squids	9	0.8	0.8	0.8	-	-
Solasteridae	5	0.8	0.8	0.8	-	-
Hagfishes	4	0.8	0.6	0.4	-	-
Spiny scallop	3	0.7	0.7	0.7	-	-
Viperfishes	9	0.5	0.5	0.5	-	-
Ctenophora	27	0.5	0.5	0.5	-	-
Lightfish/hatchetfish/dragonfish/etc	6	0.5	0.4	0.2	-	-
Pseudarchaster alascensis	2	0.5	0.5	0.5	-	-
Smootheye poacher	1	0.4	0.4	0.4	0.000	0.98

Table 7. Continued

Species	Number of Tows	Catch Weight (kg)			Relative Abundance	RE
		Total	Maximum	Mean		
Cookie star	7	0.4	0.3	0.2	-	-
Prowfish	6	0.4	0.3	0.2	0.000	0.87
Sand sole	1	0.3	0.3	0.3	0.000	1.00
Cheiraster dawsoni	12	0.3	0.3	0.3	-	-
Oregonontriton	16	0.2	0.1	0.1	-	-
Ophiuroidae	51	0.2	0.2	0.1	-	-
Pacific hagfish	2	0.2	0.2	0.2	0.000	1.01
Redclaw crab	8	0.1	0.1	0.1	-	-
Roughback sculpin	6	0.1	0.1	0.0	0.000	0.73
Bluespotted poacher	2	0.1	0.1	0.1	0.000	1.02
Shortfin eelpout	5	0.1	0.1	0.1	0.000	0.95
Tanner crabs	1	0.1	0.1	0.1	-	-
Vermillion starfish	15	0.1	0.1	0.1	-	-
Sweet potato sea cucumber	2	0.1	0.1	0.1	-	-
Squat lobster	17	0.1	0.1	0.1	-	-
Bristly crab	1	0.1	0.1	0.1	-	-
Peanutworms	5	0.0	0.0	0.0	-	-
Henricia aspera	1	-	-	-	-	-
Ridged crangon	3	-	-	-	-	-
Bigeye poacher	20	-	-	-	-	-
Polychaete worms	1	-	-	-	-	-
Pygmy poacher	3	-	-	-	-	-
Lophaster furcilliger vexator	3	-	-	-	-	-
Barnacles	2	-	-	-	-	-
Stony corals	1	-	-	-	-	-
Flattop crab	1	-	-	-	-	-
Dwarf wrymouth	1	-	-	-	-	-
Northern crangon	4	-	-	-	-	-
Leptochaster pacificus	4	-	-	-	-	-
Morning sun starfish	3	-	-	-	-	-
Roughspine sculpin	8	-	-	-	-	-
Lanternfishes	16	-	-	-	-	-
Long-armed sea star	2	-	-	-	-	-
Common two-spined crangon	9	-	-	-	-	-
Split-eye argid	1	-	-	-	-	-
Southern spinyhead	2	-	-	-	-	-
Sharp-nosed crab	1	-	-	-	-	-
Blood star	2	-	-	-	-	-
Pacific spiny lump sucker	1	-	-	-	-	-
Thornback sculpin	2	-	-	-	-	-
Sea lilies and feather stars	19	-	-	-	-	-
Northern pearleye	2	-	-	-	-	-
Isopods	71	-	-	-	-	-
Snipe eels	1	-	-	-	-	-
Poraniopsis inflata	1	-	-	-	-	-
Red rock crab	1	-	-	-	-	-
Amphiodia	1	-	-	-	-	-
Diplopteraster multipes	1	-	-	-	-	-
Snailfishes	4	-	-	-	-	-
Northern spearnose poacher	2	-	-	-	-	-
Seaspiders	1	-	-	-	-	-
Graceful decorator crab	2	-	-	-	-	-
Spotfin sculpin	6	-	-	-	-	-
Fish eggs	1	-	-	-	-	-
Spiny ridge shrimp	1	-	-	-	-	-
Crangons	20	-	-	-	-	-
Sea mouse	3	-	-	-	-	-
Smalldisk snailfish	2	-	-	-	-	-
Rose starfish	29	-	-	-	-	-
Shining tubeshoulder	3	-	-	-	-	-
Gephyreaster swifti	1	-	-	-	-	-
Bivalve molluscs	1	-	-	-	-	-
Sand crangon	1	-	-	-	-	-
Anthozoa	3	-	-	-	-	-

Table 7. Continued

Species	Number of Tows	Catch Weight (kg)			Relative Abundance	RE
		Total	Maximum	Mean		
Blacktip poacher	1	-	-	-	-	-
Common argid	2	-	-	-	-	-
Scale worms	3	-	-	-	-	-
Dusky sculpin	3	-	-	-	-	-
Unknown fish	4	-	-	-	-	-
Chitons	1	-	-	-	-	-
Phrynomiurida	1	-	-	-	-	-
Pacific viperfish	2	-	-	-	-	-
Soft sea cucumber	1	-	-	-	-	-
Black-clawed crab	1	-	-	-	-	-
Goose barnacle	1	-	-	-	-	-
Crangonidae	1	-	-	-	-	-
Skates	1	-	-	-	-	-
Humpback shrimp	2	-	-	-	-	-
Stout blacksmelt	2	-	-	-	-	-
Right-handed hermits	3	-	-	-	-	-
Red Irish lord	1	-	-	-	-	-
Blackfin poacher	1	-	-	-	-	-
Blue lanternfish	8	-	-	-	-	-
Crested bigscale	1	-	-	-	-	-
Crustaceans	2	-	-	-	-	-
Pacific red octopus	1	-	-	-	-	-
Ascidians and tunicates	2	-	-	-	-	-
Sculpins	2	-	-	-	-	-
Whitebarred prickleback	1	-	-	-	-	-
Eelpouts	4	-	-	-	-	-
Decapods	2	-	-	-	-	-
Nelson's argid	12	-	-	-	-	-
Elassochirus	3	-	-	-	-	-
Lewis moon snail	2	-	-	-	-	-
Ronquils	2	-	-	-	-	-
Manytoothed eelpout	1	-	-	-	-	-
Ophiora sarsi	24	-	-	-	-	-
Bigfin lanternfish	4	-	-	-	-	-
Porcelain crabs	1	-	-	-	-	-
California headlightfish	7	-	-	-	-	-
Hydroid	4	-	-	-	-	-
Yoldias	1	-	-	-	-	-
Seaslugs	16	-	-	-	-	-
Slim sculpin	4	-	-	-	-	-
Winged sea star	1	-	-	-	-	-
Tadpole sculpin	3	-	-	-	-	-
Northern lampfish	2	-	-	-	-	-
Spike shrimp (horned shrimp)	12	-	-	-	-	-
Segmented worms	3	-	-	-	-	-
Native littleneck clam	1	-	-	-	-	-
Poachers	9	-	-	-	-	-
Northern ronquil	7	-	-	-	-	-
Lightfishes	3	-	-	-	-	-
Large eyed eulaid	1	-	-	-	-	-
Northern argid	2	-	-	-	-	-
Tube worms	4	-	-	-	-	-
Puget sound rockfish	2	-	-	-	-	-
Lithodio crabs	1	-	-	-	-	-
Gastropods	6	-	-	-	-	-
Molluscs	1	-	-	-	-	-
Daubed shanny	4	-	-	-	-	-
Sturgeon poacher	1	-	-	-	-	-
Sea pen	1	-	-	-	-	-
Henniccia sanguinolenta	8	-	-	-	-	-
Pacific lamprey	2	-	-	-	-	-
Spider crabs	6	-	-	-	-	-
Salmonids	1	-	-	-	-	-

Table 8. Offloaded catch weight by species.

<b>Species</b>	<b>Weight (kg)</b>
Arrowtooth flounder	0.5
Aurora rockfish	3.6
Bocaccio	33.1
Canary rockfish	1,513.6
Curlfin sole	0.9
Darkblotched rockfish	215.0
Dover sole	1,806.2
English sole	352.9
Flathead sole	0.9
Greenstriped rockfish	56.2
Harlequin rockfish	57.2
Lingcod	294.8
Pacific cod	1,026.9
Pacific ocean perch	20,196.2
Petrale sole	123.8
Redbanded rockfish	489.0
Redstripe rockfish	1,948.6
Rex sole	150.1
Rock sole	134.7
Rosethorn rockfish	28.1
Rougheye rockfish	1,365.8
Sablefish	215.9
Sharpchin rockfish	3,107.1
Shortraker rockfish	215.9
Shortspine thornyhead	1,197.5
Silvergray rockfish	4,946.4
Splitnose rockfish	2,488.4
Walleye pollock	12.2
Widow rockfish	491.2
Yelloweye rockfish	10.9
Yellowmouth rockfish	3,806.5
Yellowtail rockfish	1,000.2
<b>Total</b>	<b>47,290.3</b>

Table 9. Number of samples and number of recorded biological attributes per species sampled.

Species	Samples	Lengths	Weights	Sexes	Maturities	Ages
Alaska skate	2	1	1	1	0	0
Aleutian skate	3	3	2	3	0	0
All species	1	0	0	0	0	0
Arrowtooth flounder	97	2,845	608	2,844	607	368
Aurora rockfish	6	17	17	17	17	17
Big skate	16	51	16	51	0	0
Black eelpout	4	27	0	27	0	0
Black rockfish	1	1	1	1	1	1
Blackbelly eelpout	6	340	0	0	0	0
Blackfin sculpin	4	45	0	6	0	0
Bocaccio	15	51	51	51	51	51
Brown cat shark	1	7	0	7	0	0
Canary rockfish	18	346	277	346	277	257
China rockfish	1	1	1	1	1	1
Chinook salmon	1	1	0	1	0	0
Chum salmon	7	7	0	7	0	0
Curlfin sole	20	43	43	43	43	43
Darkblotched rockfish	18	137	137	137	137	137
Dover sole	95	2,242	840	2,242	840	413
English sole	42	1,521	683	1,522	682	364
Eulachon	3	164	0	0	0	0
Fish eggs	1	0	0	0	0	0
Flathead sole	22	651	37	651	37	12
Greenstriped rockfish	30	414	208	414	208	143
Harlequin rockfish	3	50	50	50	50	50
Kelp greenling	2	10	0	10	0	0
Lingcod	78	239	239	239	239	240
Longnose skate	76	132	55	131	0	0
Longspine thornyhead	4	120	0	120	0	0
Pacific cod	86	1,078	707	1,078	707	0
Pacific hake	66	1,924	975	1,924	975	430
Pacific halibut	72	206	0	163	0	0
Pacific herring	6	156	0	6	0	0
Pacific ocean perch	93	3,083	1,819	3,021	1,818	910
Pacific sand lance	4	291	0	9	0	0
Pacific sanddab	22	954	98	925	0	0
Pacific tomcod	2	195	0	21	0	0
Petrale sole	47	512	377	512	377	289
Pygmy rockfish	10	290	0	223	0	0
Quillback rockfish	18	165	165	166	166	168
Redbanded rockfish	90	472	422	472	422	422
Redstripe rockfish	29	993	442	884	442	235
Rex sole	102	3,509	1,121	3,509	430	430
Rosethorn rockfish	28	175	175	175	175	175
Rougheye rockfish	44	572	450	572	450	433
Sablefish	50	623	214	623	214	124
Sandpaper skate	14	17	14	17	0	0
Sharpchin rockfish	22	762	191	526	191	141
Shortbelly rockfish	4	121	21	121	21	21
Shortraker rockfish	10	47	47	47	47	47
Shortspine thornyhead	65	2,193	1,189	2,193	1,188	434
Silvergray rockfish	51	969	641	959	641	423
Slender sole	11	218	0	218	0	0
Southern rock sole	42	820	728	820	700	400
Spiny dogfish	37	594	118	594	0	0
Splitnose rockfish	17	536	444	536	444	297
Spotted ratfish	64	1,543	230	1,543	0	0
Stripetail rockfish	2	44	0	44	0	0
Threadfin sculpin	1	7	7	7	7	7
Tiger rockfish	1	1	1	1	1	1
Vermilion rockfish	1	1	1	1	1	1
Walleye pollock	45	673	50	673	50	0
Whitespotted greenling	1	1	0	1	0	0
Widow rockfish	7	122	86	122	86	86
Yelloweye rockfish	32	93	93	93	93	93
Yellowmouth rockfish	28	609	354	498	354	312
Yellowtail rockfish	20	449	317	449	317	276
Total	1,819	34,484	14,763	32,678	13,507	8,250

Table 10. Numbers of samples and specimens by sample type and species.

Species	Total		Len/Sex		Len/Sex/Wt		Len/Sex/Wt/Age	
	N	n	N	n	N	n	N	n
Alaska skate	2	1	0	0	1	1	0	0
Aleutian skate	3	3	1	1	2	2	0	0
All species	1	0	0	0	0	0	0	0
Arrowtooth flounder	97	2,845	82	2,237	6	241	9	368
Aurora rockfish	6	17	0	0	0	0	6	17
Big skate	18	51	10	35	6	16	0	0
Black eelpout	4	27	4	27	0	0	0	0
Black rockfish	1	1	0	0	0	0	1	1
Blackbelly eelpout	6	340	6	340	0	0	0	0
Blackfin sculpin	4	45	4	45	0	0	0	0
Bocaccio	15	51	0	0	0	0	15	51
Brown cat shark	1	7	1	7	0	0	0	0
Canary rockfish	18	346	9	89	1	20	8	257
China rockfish	1	1	0	0	0	0	1	1
Chinook salmon	1	1	1	1	0	0	0	0
Chum salmon	7	7	7	7	0	0	0	0
Curfin sole	20	43	0	0	0	0	20	43
Darkblotched rockfish	18	137	0	0	0	0	18	137
Dover sole	95	2,242	75	1,402	9	427	11	413
English sole	42	1,521	27	839	7	319	8	364
Eulachon	3	164	3	164	0	0	0	0
Fish eggs	1	0	0	0	0	0	0	0
Flathead sole	22	651	20	614	1	25	1	12
Greenstriped rockfish	30	414	18	206	2	65	10	143
Harlequin rockfish	3	50	0	0	0	0	3	50
Kelp greenling	2	10	2	10	0	0	0	0
Lingcod	78	239	0	0	0	0	78	240
Longnose skate	78	132	38	77	40	55	0	0
Longspine thornyhead	4	120	4	120	0	0	0	0
Pacific cod	86	1,078	46	371	40	707	0	0
Pacific hake	66	1,924	45	949	12	545	9	430
Pacific halibut	72	206	72	206	0	0	0	0
Pacific herring	6	156	6	156	0	0	0	0
Pacific ocean perch	93	3,083	52	1,264	19	889	22	910
Pacific sand lance	4	291	4	291	0	0	0	0
Pacific sanddab	22	954	20	856	2	98	0	0
Pacific tomcod	2	195	2	195	0	0	0	0
Petrale sole	47	512	15	135	4	88	28	289
Pygmy rockfish	10	290	10	290	0	0	0	0
Quillback rockfish	16	165	0	0	0	0	15	166
Redbanded rockfish	90	472	7	50	0	0	83	422
Redstripe rockfish	29	993	20	551	4	207	5	235
Rex sole	102	3,509	78	2,388	13	691	10	430
Rosethorn rockfish	28	175	0	0	0	0	28	175
Rougheye rockfish	44	572	16	122	1	17	27	433
Sablefish	50	623	44	409	3	90	3	124
Sandpaper skate	14	17	3	3	11	14	0	0
Sharpchin rockfish	22	762	18	571	1	50	3	141
Shortbelly rockfish	4	121	3	100	0	0	1	21
Shortraker rockfish	10	47	0	0	0	0	10	47
Shortspine thornyhead	65	2,193	40	1,004	16	755	9	434
Silvergray rockfish	51	969	34	328	6	218	11	423
Slender sole	11	218	11	218	0	0	0	0
Southern rock sole	42	820	14	92	9	328	19	400
Spiny dogfish	37	594	32	476	4	118	0	0
Splitnose rockfish	17	536	8	92	3	147	6	297
Spotted ratfish	64	1,543	58	1,313	6	230	0	0
Stripetail rockfish	2	44	2	44	0	0	0	0
Threadfin sculpin	1	7	0	0	0	0	1	7
Tiger rockfish	1	1	0	0	0	0	1	1
Vermilion rockfish	1	1	0	0	0	0	1	1
Walleye pollock	45	673	44	623	1	50	0	0
Whitespotted greenling	1	1	1	1	0	0	0	0
Widow rockfish	7	122	4	36	0	0	3	86
Yelloweye rockfish	32	93	0	0	0	0	32	93
Yellowmouth rockfish	28	609	18	255	1	42	9	312
Yellowtail rockfish	20	449	11	132	1	41	8	276
Total	1,819	34,484	1,048	19,722	232	6,496	533	8,250

Table 11. Statistics of individual length and weight, and sex proportion by species.

Species	Length (cm)			Weight (kg)			Sex Proportion	
	Min.	Max.	Mean	Min.	Max.	Mean	Male	Female
Alaska skate	61.5	61.5	61.5	1.12	1.12	1.12	1.00	0.00
Aleutian skate	66.6	102.0	88.2	1.02	5.20	3.11	0.67	0.33
Arrowtooth flounder	13.0	75.0	33.9	0.02	4.07	0.78	0.42	0.58
Aurora rockfish	25.6	38.4	31.5	0.28	0.80	0.50	0.53	0.47
Big skate	23.0	165.0	74.4	0.68	40.00	8.13	0.49	0.51
Black eelpout	13.0	36.0	23.9				0.30	0.70
Black rockfish	49.6	49.6	49.6	1.98	1.98	1.98	0.00	1.00
Blackbelly eelpout	5.0	31.0	18.5				0.00	0.00
Blackfin sculpin	6.0	20.0	13.9				0.13	0.00
Bocaccio	31.3	85.1	67.5	2.35	7.53	4.27	0.75	0.25
Brown cat shark	48.0	57.0	53.2				0.86	0.14
Canary rockfish	20.0	59.4	48.7	0.82	3.99	2.10	0.65	0.35
China rockfish	37.2	37.2	37.2	1.02	1.02	1.02	0.00	1.00
Chinook salmon	75.0	75.0	75.0				0.00	1.00
Chum salmon	63.0	71.0	67.8				0.86	0.14
Curlfin sole	24.5	35.4	28.3	0.22	0.73	0.37	0.65	0.35
Darkblotched rockfish	17.3	56.1	38.6	0.10	3.19	1.11	0.57	0.43
Dover sole	16.0	64.0	36.6	0.04	1.98	0.58	0.58	0.42
English sole	13.0	48.0	28.8	0.06	1.05	0.26	0.42	0.58
Eulachon	11.0	20.0	17.7				0.00	0.00
Flathead sole	12.0	41.0	27.7	0.08	0.44	0.27	0.44	0.56
Greenstriped rockfish	10.0	37.7	27.8	0.03	0.91	0.34	0.49	0.51
Harlequin rockfish	15.8	29.6	25.1	0.05	0.34	0.22	0.36	0.64
Kelp greenling	37.0	43.0	40.0				0.00	1.00
Lingcod	29.4	104.5	68.9	0.80	10.58	3.39	0.25	0.75
Longnose skate	8.2	146.2	87.4	0.27	19.60	4.59	0.52	0.47
Longspine thornyhead	12.0	30.0	21.2				0.48	0.52
Pacific cod	6.0	82.0	43.6	0.13	4.96	0.99	0.50	0.50
Pacific hake	20.3	70.5	48.2	0.20	1.89	0.72	0.42	0.58
Pacific halibut	52.0	176.0	72.8				0.47	0.32
Pacific herring	18.0	26.0	22.2				0.02	0.02
Pacific ocean perch	7.0	52.4	35.5	0.04	2.70	0.82	0.53	0.45
Pacific sand lance	6.0	20.0	13.3				0.01	0.02
Pacific sanddab	7.0	35.0	22.0	0.02	0.24	0.07	0.44	0.53
Pacific tomcod	15.0	24.0	18.6				0.05	0.06
Petrale sole	23.0	64.3	39.9	0.19	3.18	0.82	0.52	0.48
Pygmy rockfish	9.0	22.0	13.6				0.37	0.40
Quillback rockfish	21.2	44.9	36.6	0.19	1.96	1.09	0.50	0.50
Redbanded rockfish	11.2	61.5	38.3	0.02	4.98	1.15	0.51	0.49
Redstripe rockfish	9.0	43.2	29.0	0.08	0.97	0.50	0.36	0.53
Rex sole	9.0	49.0	30.4	0.03	0.80	0.20	0.58	0.42
Rosethorn rockfish	11.4	34.4	25.7	0.02	0.60	0.26	0.51	0.49
Rougheye rockfish	13.1	65.2	42.8	0.03	4.55	1.45	0.55	0.45
Sablefish	37.0	86.0	57.3	1.11	6.34	2.26	0.74	0.26
Sandpaper skate	20.0	80.3	53.5	0.20	3.29	1.05	0.53	0.47
Sharpchin rockfish	5.0	39.3	21.1	0.05	0.84	0.38	0.32	0.37
Shortbelly rockfish	14.0	21.6	18.0	0.03	0.11	0.08	0.37	0.63
Shortraker rockfish	46.9	97.5	62.4	1.35	15.11	4.38	0.47	0.53
Shortspine thornyhead	3.6	67.0	28.0	0.01	4.73	0.32	0.49	0.51
Silvershore rockfish	20.0	67.9	52.0	0.74	4.28	1.89	0.54	0.46
Slender sole	13.0	35.0	20.9				0.43	0.57
Southern rock sole	9.1	59.5	30.5	0.01	2.72	0.47	0.34	0.66
Spiny dogfish	46.0	109.0	67.7	0.65	3.28	1.82	0.70	0.30
Splitnose rockfish	11.0	41.4	29.4	0.11	1.40	0.51	0.52	0.48
Spotted ratfish	7.0	63.0	26.9	0.06	1.36	0.36	0.51	0.49
Stripetail rockfish	9.0	15.0	12.0				0.45	0.55
Threadfin sculpin	16.1	26.6	22.3	0.04	0.26	0.16	0.14	0.86
Tiger rockfish	37.4	37.4	37.4	1.06	1.06	1.06	0.00	1.00
Vermilion rockfish	49.5	49.5	49.5	2.22	2.22	2.22	1.00	0.00
Walleye pollock	7.0	69.0	35.6	0.15	0.67	0.28	0.33	0.67
Whitespotted greenling	40.0	40.0	40.0				1.00	0.00
Widow rockfish	7.9	62.0	42.6	0.01	4.67	1.38	0.56	0.44
Yelloweye rockfish	24.5	72.2	54.1	0.22	8.12	3.34	0.58	0.42
Yellowmouth rockfish	5.0	54.7	37.0	0.87	2.16	1.40	0.42	0.40
Yellowtail rockfish	34.2	57.9	46.1	0.57	2.92	1.54	0.60	0.40

**Table 12.** Data collected from net sensors, showing the number of tows from which each data type was collected (total number of survey tows is 253).

Sensor	Attribute	Num. Tows	Num. Records
NMFS Bottom Contact Sensor	Bottom Contact Sensor Tilt Angle	268	50,250
Scanmar Scanbas Sru 06 / Sgm 15	Bottom Depth	247	315,355
Scanmar Scanbas Sru 06 / Sgm 15	Cross-Current Water Velocity At Net Depth	217	290,204
Scanmar Scanbas Sru 06 / Sgm 15	Density Of Fish In Net	273	322,895
Scanmar Scanbas Sru 06 / Sgm 15	Net Depth	272	364,753
Scanmar Scanbas Sru 06 / Sgm 15	Trawl Net Doorspread	276	360,603
Scanmar Scanbas Sru 06 / Sgm 15	Trawl Net Footrope To Headline Distance	273	322,895
Scanmar Scanbas Sru 06 / Sgm 15	Trawl Net Headrope To Bottom Distance	273	322,895
Scanmar Scanbas Sru 06 / Sgm 15	Vessel Direction - Compass Bearing True North	276	376,465
Scanmar Scanbas Sru 06 / Sgm 15	Vessel Position - Latitude	276	376,465
Scanmar Scanbas Sru 06 / Sgm 15	Vessel Position - Longitude	276	376,465
Scanmar Scanbas Sru 06 / Sgm 15	Vessel Speed Over Ground	276	376,465
Scanmar Scanbas Sru 06 / Sgm 15	Water Temperature At Net Depth	273	363,209
Scanmar Scanbas Sru 06 / Sgm 15	Water Velocity At Net Depth	217	290,204
Seabird Sbe39 Temperature And Pressure Sensor	Net Depth	237	41,689
Seabird Sbe39 Temperature And Pressure Sensor	Water Temperature At Net Depth	237	41,689

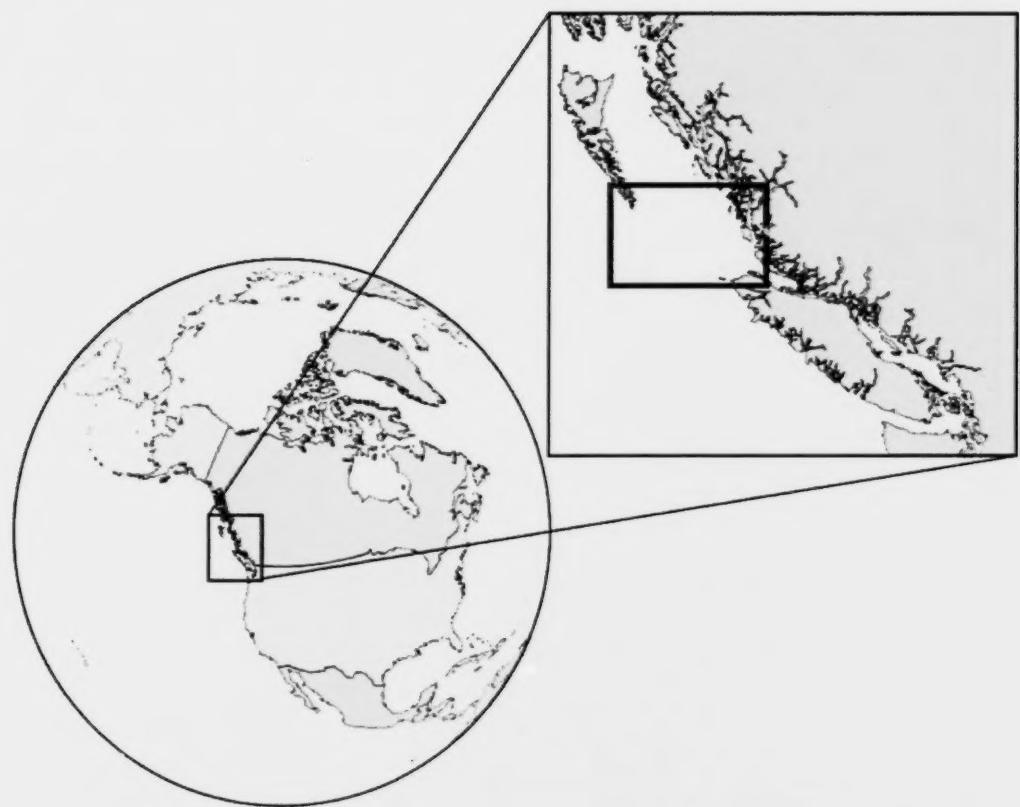


Figure 1. Location of Queen Charlotte Sound on the coast of British Columbia, Canada.



Figure 2. The commercial stern trawler F/V Viking Storm.

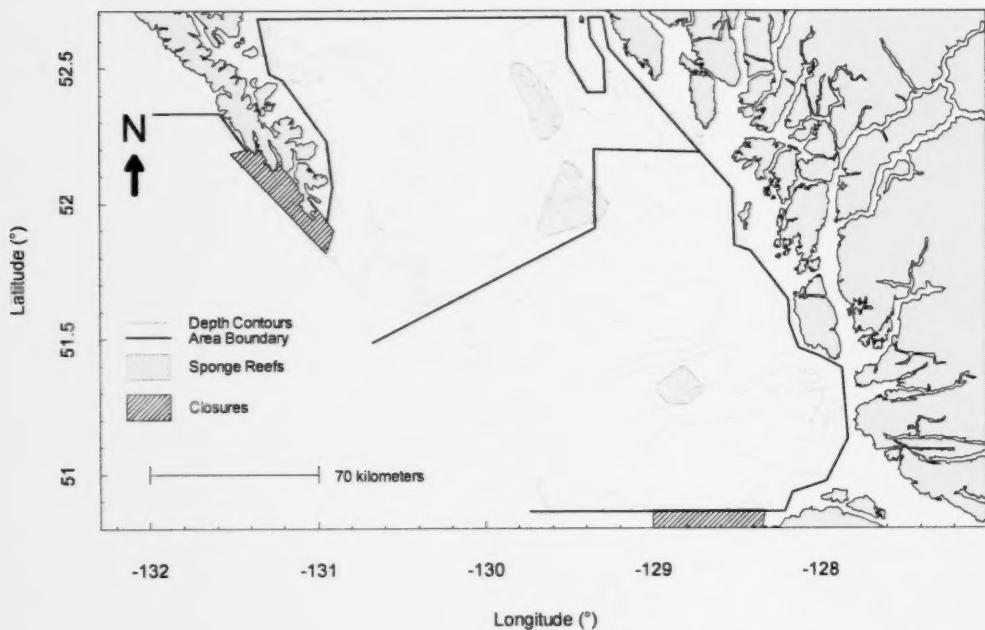


Figure 3. The Queen Charlotte Sound study area showing area boundary, fishing closures, sponge reef protected areas, and depth contours.

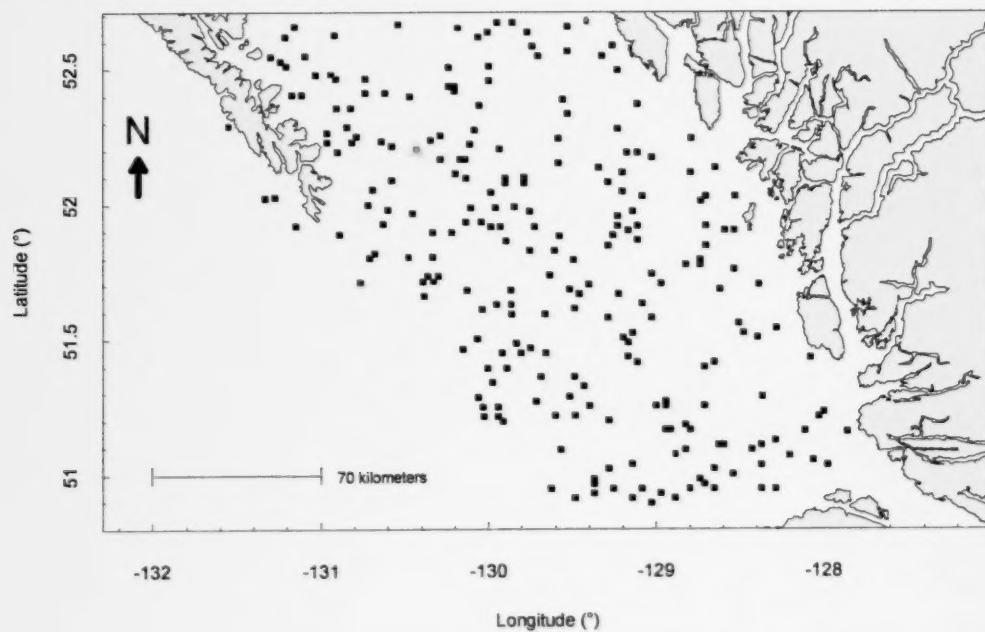


Figure 4. Initial status of the sampling frame showing the 240 primary fishing locations.

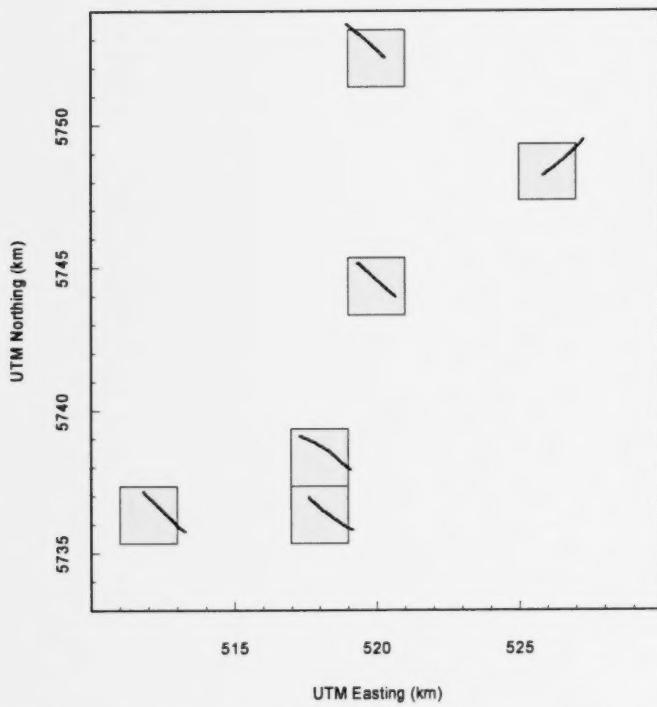


Figure 5. Example tow tracks from 2004.

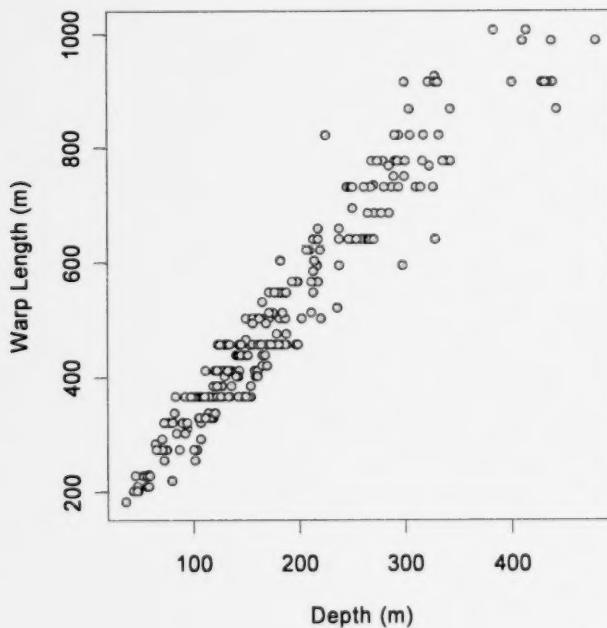


Figure 6. Warp length versus starting depth.

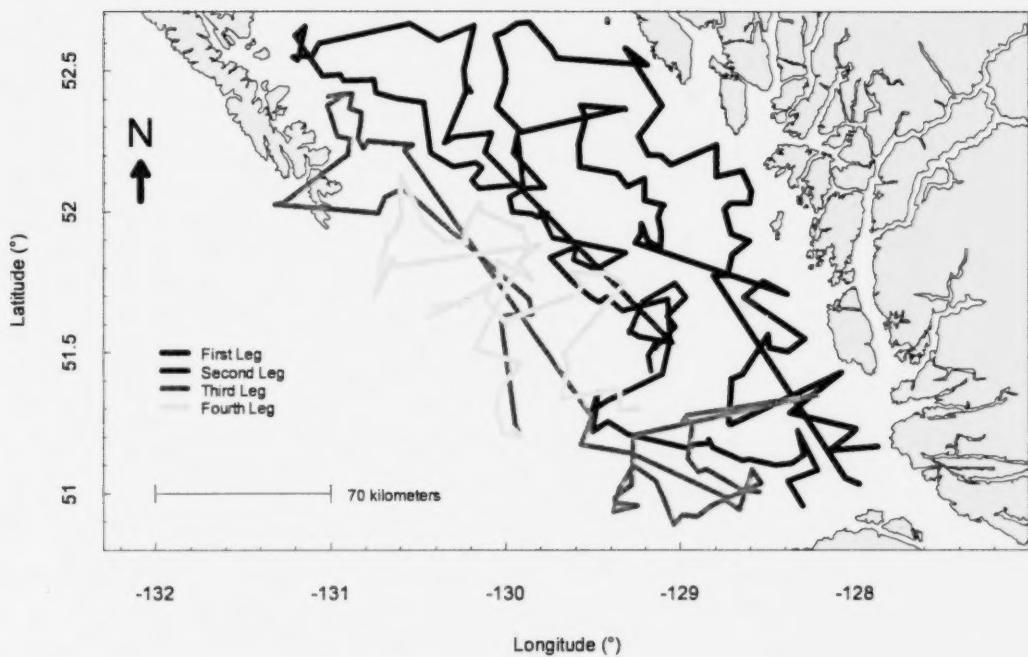


Figure 7. The paths followed on each leg of the survey.

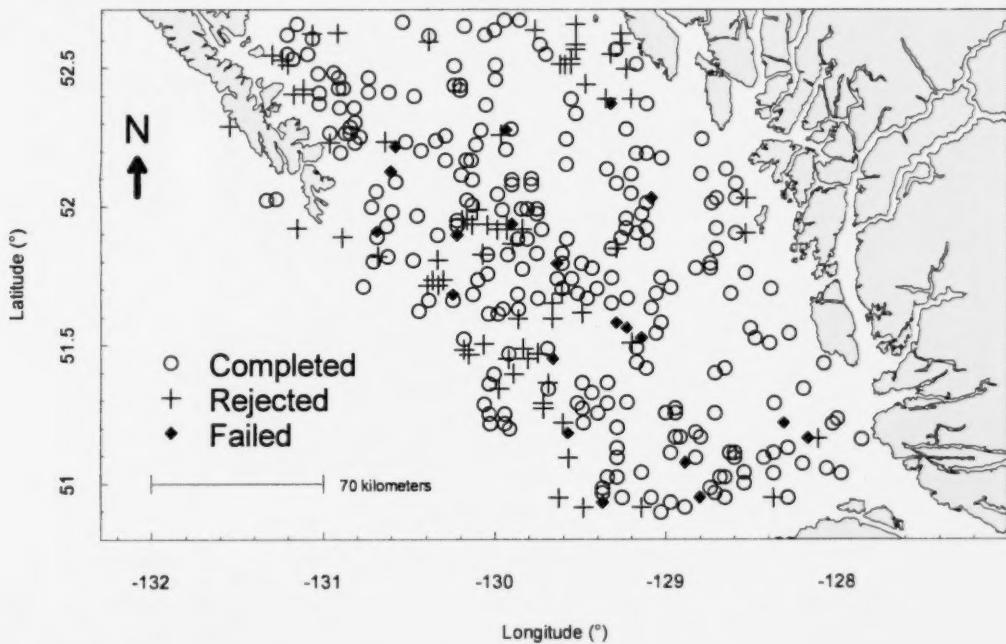


Figure 8. Final status of the sampling frame showing locations that were fished successfully (completed), rejected prior to fishing (rejected), or abandoned after one or more unsuccessful fishing attempts (failed).

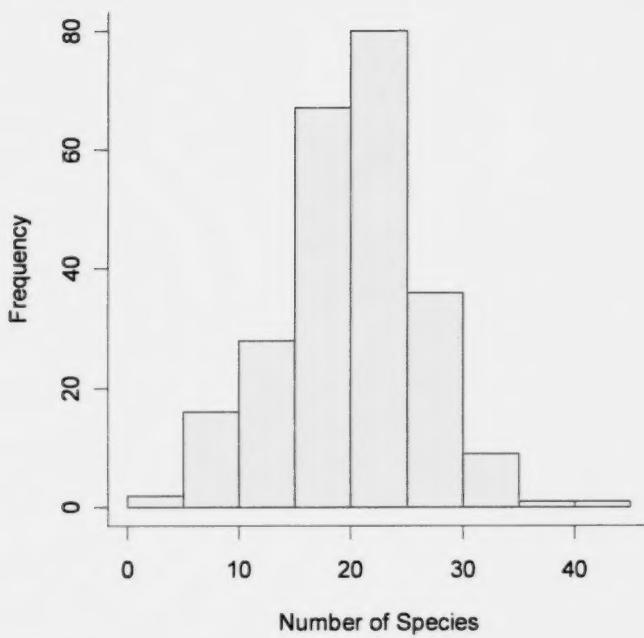


Figure 9. Histogram of number of species caught per tow.

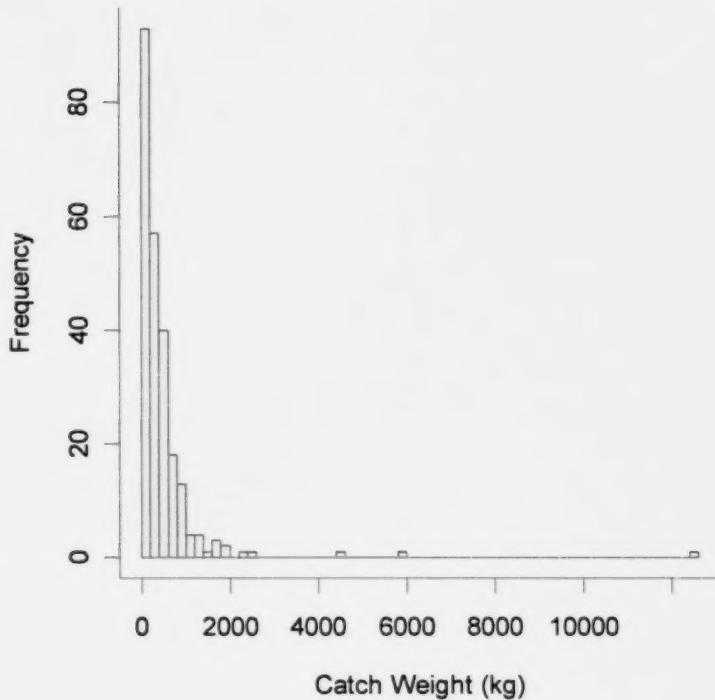


Figure 10. Histogram of catch weight per tow.

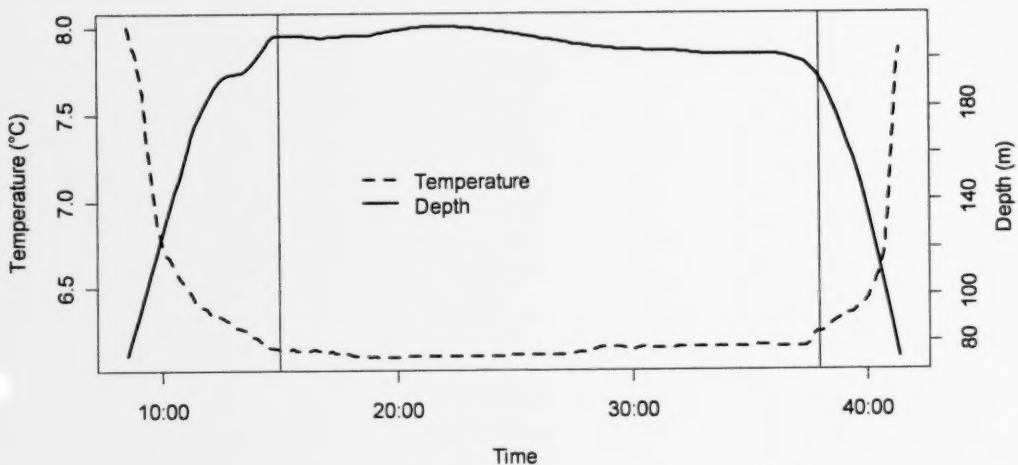


Figure 11. Seabird 39 temperature and depth profile from set number 15. The vertical lines indicate the start and end of net contact with the sea floor.

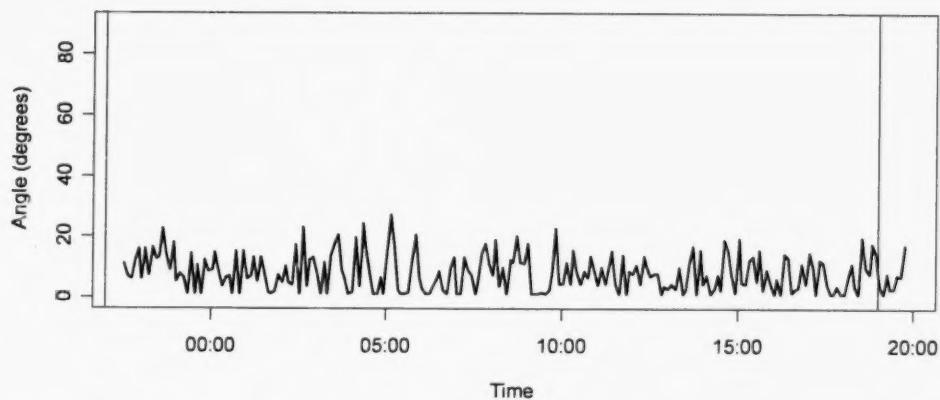


Figure 12. NMFS bottom contact sensor profile from set number 4. The vertical lines indicate the start and end of net contact with the sea floor.

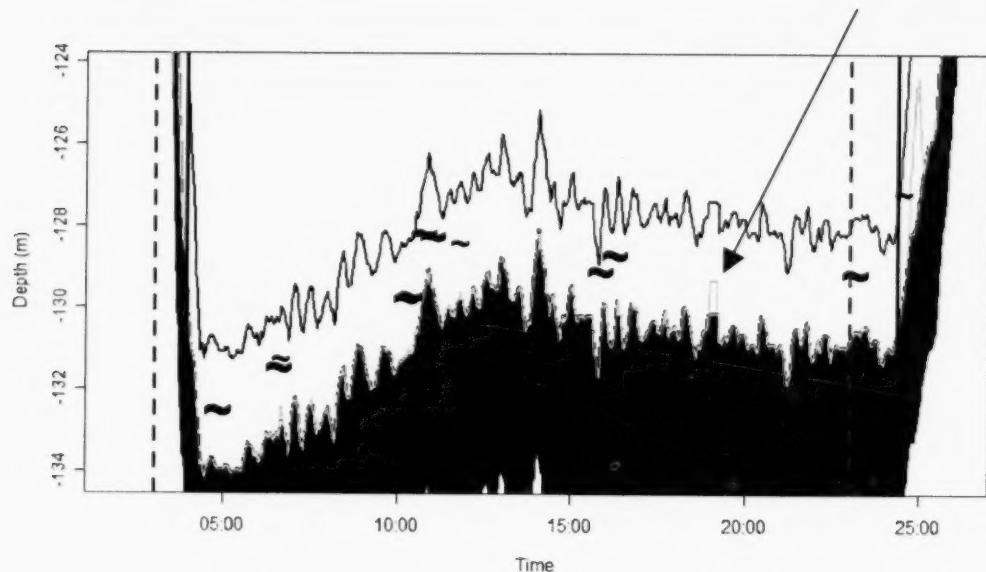


Figure 13. Example plot of net sensor data. The solid dark area at the bottom represents the sea floor. The light grey line directly above that represents the net footrope (note the region indicated by the arrow, showing where the net has risen off the sea floor for a brief period). The top line indicates the net headrope. The symbols between the headrope and the footrope indicate where fish have entered the net.

## APPENDIX A: BRIDGE LOG

Tow	Date	Time	Latitude	Longitude	Depth (m)	Duration (min)	Speed (km/h)	Warp (m)	Catch (kg)	Usable?
1	Jul 06	19:47	51.0358	127.9763	144	21	5.4	457	1645.4	Yes
2	Jul 06	21:14	51.0538	128.0532	154	22	5.3	457	721.4	Yes
3	Jul 07	06:06	51.7747	128.8118	66	24	5.2	274	95.7	Yes
4	Jul 07	07:20	51.7733	128.7240	73	22	5.4	320	95.4	Yes
5	Jul 07	08:02	51.7927	128.7247	73	21	6.2	320	95.9	Yes
6	Jul 07	09:14	51.8465	128.7003	123	22	4.9	412	563.6	Yes
7	Jul 07	11:54	51.8957	128.6037	134	19	6.0	366	142.9	Yes
8	Jul 07	12:58	51.9225	128.7060	146	20	5.4	457	449.4	Yes
9	Jul 07	14:18	52.0087	128.7450	174	22	5.6	457	421.5	Yes
10	Jul 07	15:13	52.0292	128.7142	181	21	5.8	457	488.3	Yes
11	Jul 07	16:56	52.0288	128.6045	150	21	5.2	366	146.3	Yes
12	Jul 07	18:55	52.0755	128.5943	157	23	5.7	494	1815.8	Yes
13	Jul 07	20:17	52.1475	128.6470	214	20	5.8	585	71.5	Yes
14	Jul 07	21:33	52.1238	128.7913	199	24	5.9	567	225.2	Yes
15	Jul 08	06:38	52.2385	128.7927	216	23	5.3	567	90.0	Yes
16	Jul 08	09:08	52.1687	129.0540	141	20	5.2	402	124.7	Yes
17	Jul 08	10:45	52.1998	129.1102	159	22	5.8	402	45.2	Yes
18	Jul 08	11:55	52.2033	129.1848	159	21	5.6	402	48.1	Yes
19	Jul 08	13:44	52.2698	129.2428	176	22	6.0	512	122.0	Yes
20	Jul 08	15:35	52.3768	129.1057	161	21	5.4	402	207.3	Yes
21	Jul 08	19:01	52.5810	129.3123	104	20	5.7	274	545.3	Yes
22	Jul 08	21:13	52.5227	129.1905	137	20	5.4	384	418.3	Yes
23	Jul 09	08:51	52.5455	129.7057	150	20	5.7	439	84.1	Yes
24	Jul 09	10:34	52.5780	129.7342	144	19	5.7	439	88.7	Yes
25	Jul 09	13:08	52.6740	129.8653	247	21	5.5	640	141.4	Yes
26	Jul 09	14:10	52.6683	129.9380	260	20	5.4	640	128.7	Yes
27	Jul 09	15:09	52.6402	130.0018	265	20	4.9	640	206.0	Yes
28	Jul 09	16:10	52.6255	130.0585	269	19	4.8	640	181.7	Yes
29	Jul 09	17:42	52.5140	129.9982	267	22	4.6	640	65.4	Yes
30	Jul 09	18:45	52.4618	129.9983	254	24	4.8	640	137.3	Yes
31	Jul 09	20:10	52.3748	130.0517	271	21	5.0	640	90.0	Yes
32	Jul 09	22:03	52.2828	129.9078	117	20	6.0	329	71.9	Yes
33	Jul 10	07:35	52.3670	129.3188	101	3	6.2	274	14.9	No
34	Jul 10	08:20	52.3640	129.3135	102	8	5.7	256	28.5	No
35	Jul 10	10:50	52.3785	129.5693	179	20	5.8	476	166.6	Yes
36	Jul 10	12:01	52.3362	129.5413	185	21	6.2	512	68.5	Yes
37	Jul 10	13:15	52.2428	129.5805	214	20	5.5	549	137.3	Yes
38	Jul 10	14:25	52.1598	129.5778	218	20	5.8	567	232.3	Yes
39	Jul 10	16:54	52.1363	129.3603	174	19	5.7	457	31.7	Yes
40	Jul 10	17:55	52.0902	129.3030	165	20	5.6	457	110.2	Yes
41	Jul 10	19:17	52.1167	129.2090	166	20	5.2	421	75.7	Yes
42	Jul 10	20:49	52.0407	129.2070	170	21	4.9	421	133.0	Yes
43	Jul 11	05:54	52.0225	129.0922	166	2	5.0	439	17.8	No
44	Jul 11	06:39	52.0192	129.1053	168	19	4.8	439	139.2	Yes
45	Jul 11	07:42	51.9798	129.1245	185	20	5.4	549	2479.2	Yes
46	Jul 11	09:07	51.9297	129.1075	128	20	5.2	384	184.3	Yes
47	Jul 11	10:14	51.8707	129.1132	123	22	5.3	384	332.2	Yes

Tow	Date	Time	Latitude	Longitude	Depth (m)	Duration (min)	Speed (km/h)	Warp (m)	Catch (kg)	Usable?
48	Jul 11	11:18	51.8973	129.1818	121	21	5.6	338	139.9	Yes
49	Jul 11	12:19	51.9580	129.2260	181	21	5.8	549	270.2	Yes
50	Jul 11	13:31	51.9260	129.2207	183	23	4.8	604	236.2	Yes
51	Jul 11	14:38	51.8902	129.2558	166	24	4.9	530	833.9	Yes
52	Jul 12	06:08	51.7070	128.3873	144	24	5.5	439	376.0	Yes
53	Jul 12	07:30	51.7548	128.5287	146	21	5.9	439	405.6	Yes
54	Jul 12	09:05	51.6972	128.6325	37	22	6.5	183	107.2	Yes
55	Jul 12	11:32	51.5500	128.2870	152	20	6.0	439	321.0	Yes
56	Jul 12	12:44	51.5055	128.3860	177	25	5.5	549	894.8	Yes
57	Jul 12	14:12	51.5197	128.4898	188	21	6.0	549	385.5	Yes
58	Jul 12	15:21	51.5633	128.4988	172	21	5.5	512	505.5	Yes
59	Jul 12	17:02	51.4223	128.6433	212	20	5.4	567	546.4	Yes
60	Jul 12	18:03	51.4058	128.7090	218	22	5.1	640	458.4	Yes
61	Jul 12	19:33	51.2515	128.7255	198	5	7.3	567	494.5	No
62	Jul 12	20:23	51.2453	128.7125	194	21	5.4	567	1620.1	Yes
63	Jul 13	06:18	51.4297	128.0792	123	21	6.3	384	337.3	Yes
64	Jul 13	09:15	51.2862	128.3753	95	21	5.9	320	170.7	Yes
65	Jul 13	11:48	51.2300	127.9950	93	20	6.2	302	171.4	Yes
66	Jul 13	12:44	51.2112	128.0245	80	21	5.8	220	125.8	Yes
67	Jul 13	15:05	51.1543	128.1472	108	18	6.0	293	163.5	No
68	Jul 13	17:56	51.1660	127.8652	112	21	5.5	329	1152.7	Yes
69	Jul 15	06:06	51.4343	129.1692	85	20	6.4	302	482.6	Yes
70	Jul 15	07:44	51.4887	129.1853	46	21	6.3	201	676.7	Yes
71	Jul 15	08:26	51.5402	129.1407	48	4	5.0	201	36.5	No
72	Jul 15	09:06	51.5163	129.1462	49	12	7.2	201		No
73	Jul 15	10:36	51.5907	129.0315	44	21	6.8	201	425.8	Yes
74	Jul 15	12:15	51.6288	129.0763	48	20	5.6	201	2231.6	Yes
75	Jul 15	13:25	51.6967	128.9708	73	20	5.9	256	144.9	Yes
76	Jul 15	14:36	51.7453	129.0308	95	19	6.0	311	64.2	Yes
77	Jul 15	16:11	51.6778	129.2202	59	20	7.1	230	356.5	Yes
78	Jul 15	17:06	51.5715	129.2935	57	3	4.5	210	13.4	No
79	Jul 15	17:35	51.5793	129.2925	59	9	5.7	210	33.7	No
80	Jul 15	18:08	51.5580	129.2380	48	3	4.3	210	20.6	No
81	Jul 15	19:34	51.5352	129.0463	49	5	6.2	201	61.5	No
82	Jul 16	06:13	52.2117	130.1208	271	27	6.6	735	43.8	Yes
83	Jul 16	07:25	52.2810	130.0780	245	20	6.6	732	776.0	Yes
84	Jul 16	09:28	52.2647	130.2870	384	22	6.2	1006	556.7	Yes
85	Jul 16	11:08	52.2427	130.3448	384	26	7.9	1006	353.0	Yes
86	Jul 16	13:51	52.4430	130.2180	322	21	7.9	914	107.3	Yes
87	Jul 16	15:03	52.4285	130.1965	329	27	8.2	925	234.2	Yes
88	Jul 16	16:12	52.4313	130.2273	329	20	5.3	914	198.4	Yes
89	Jul 16	17:23	52.5068	130.2412	300	22	5.1	914	269.0	Yes
90	Jul 16	19:30	52.6607	130.1828	251	19	6.0	695	443.8	Yes
91	Jul 16	21:30	52.6100	130.3792	172	19	6.6	549	1211.9	Yes
92	Jul 17	06:08	52.6697	130.5445	143	21	6.0	439	154.7	Yes
93	Jul 17	09:37	52.5982	131.0645	119	17	6.1	329	18.7	Yes
94	Jul 17	10:43	52.5543	131.1080	141	19	5.8	439	126.6	Yes
95	Jul 17	12:33	52.5510	131.2155	157	19	5.5	457	445.2	Yes
96	Jul 17	13:26	52.5387	131.1885	168	20	5.4	503	355.5	Yes
97	Jul 17	15:40	52.6583	131.1460	88	19	6.2	274	44.5	Yes

Tow	Date	Time	Latitude	Longitude	Depth (m)	Duration (min)	Speed (km/h)	Warp (m)	Catch (kg)	Usable?
98	Jul 17	16:32	52.6273	131.2017	79	19	6.6	320	222.3	Yes
99	Jul 17	18:40	52.4813	131.0445	117	19	6.5	366	49.6	Yes
100	Jul 17	19:59	52.4853	130.9400	106	19	5.8	329	5.3	Yes
101	Jul 17	20:45	52.4645	130.9260	106	21	5.6	366	47.0	Yes
102	Jul 18	06:02	52.4685	130.7505	132	20	6.9	412	84.8	Yes
103	Jul 18	07:15	52.4230	130.7365	110	19	7.0	366	19.3	Yes
104	Jul 18	08:37	52.4023	130.6195	132	20	5.9	457	54.0	Yes
105	Jul 18	10:13	52.3890	130.4628	161	21	6.3	503	807.3	Yes
106	Jul 18	12:32	52.2087	130.4238	331	21	5.2	914	106.6	Yes
107	Jul 18	14:09	52.1605	130.2963	415	20	5.7	1006	302.4	Yes
108	Jul 18	15:35	52.1747	130.1683	304	20	6.1	869	51.6	Yes
109	Jul 18	16:45	52.1567	130.1375	267	20	5.3	732	93.7	Yes
110	Jul 18	18:00	52.1100	130.1923	294	21	5.8	823	72.6	Yes
111	Jul 18	19:03	52.0833	130.1553	249	20	5.5	732	153.0	Yes
112	Jul 18	20:55	52.0973	129.8987	121	19	6.4	412	28.4	Yes
113	Jul 19	05:48	52.2765	129.9323	112	9	5.4	412	30.1	No
114	Jul 19	07:47	52.2085	129.9563	141	20	6.3	439	22.4	Yes
115	Jul 19	10:23	52.1077	129.8060	150	22	6.2	466	60.5	Yes
116	Jul 19	11:18	52.0867	129.7798	108	20	6.1	366	23.4	Yes
117	Jul 19	12:19	52.0842	129.8882	124	21	5.6	457	31.0	Yes
118	Jul 19	13:21	52.0517	129.9793	130	21	5.6	457	24.0	Yes
119	Jul 19	14:19	51.9985	129.9632	130	21	6.0	457	9.2	Yes
120	Jul 19	15:28	51.9928	129.8487	121	20	6.3	366	236.8	Yes
121	Jul 19	16:03	51.9822	129.8193	119	4	6.3	366	11.6	No
122	Jul 19	16:52	51.9950	129.7618	119	2	6.6	366		No
123	Jul 19	17:30	51.9810	129.7575	123	19	7.1	366	776.0	Yes
124	Jul 19	18:32	51.9827	129.7628	121	20	6.0	366	19.8	Yes
125	Jul 19	19:14	51.9993	129.8013	115	20	6.8	366	59.1	Yes
126	Jul 19	20:42	51.9073	129.7292	135	20	5.9	457	688.7	Yes
127	Jul 20	06:16	51.8545	129.3140	150	23	6.0	503	563.8	Yes
128	Jul 20	07:44	51.7960	129.4820	218	22	6.5	658	845.8	Yes
129	Jul 20	09:08	51.8312	129.6070	280	22	5.7	777	677.3	Yes
130	Jul 20	10:11	51.8752	129.5992	249	20	6.4	732	396.0	Yes
131	Jul 20	11:46	51.8385	129.7427	269	20	7.5	777	361.0	Yes
132	Jul 20	13:40	51.7485	129.6147	251	21	4.0	732	675.2	Yes
133	Jul 20	15:03	51.6973	129.5115	101	20	6.3	366	72.9	Yes
134	Jul 20	15:50	51.6788	129.4667	84	21	6.9	366	275.1	Yes
135	Jul 20	16:43	51.6977	129.4205	77	19	6.5	320	182.8	Yes
136	Jul 20	17:54	51.6472	129.3322	53	20	6.7	229	12465.4	Yes
137	Jul 20	20:04	51.6913	129.0722	75	21	6.7	320	64.7	Yes
138	Jul 20	21:25	51.5478	129.0590	46	15	6.5	229	295.2	Yes
139	Jul 21	06:10	51.4233	129.1055	130	21	5.1	412	564.1	Yes
140	Jul 21	08:08	51.3297	129.4232	214	22	5.8	640	938.1	Yes
141	Jul 21	09:33	51.2923	129.5080	249	22	5.5	640	494.0	Yes
142	Jul 21	10:57	51.3605	129.4745	172	20	6.2	503	168.2	Yes
143	Jul 21	12:52	51.2188	129.4992	291	21	6.3	777	442.6	Yes
144	Jul 21	13:57	51.2552	129.4135	291	22	5.9	823	747.7	Yes
145	Jul 21	15:12	51.2105	129.2987	294	17	5.3	777	505.3	No
146	Jul 21	17:39	51.1593	128.9535	126	20	6.0	457	74.4	Yes
147	Jul 21	18:23	51.1755	128.9243	126	21	6.3	457	179.0	Yes

Tow	Date	Time	Latitude	Longitude	Depth (m)	Duration (min)	Speed (km/h)	Warp (m)	Catch (kg)	Usable?
148	Jul 21	19:25	51.1777	128.8300	128	21	5.8	412	430.0	No
149	Jul 21	20:08	51.1932	128.8367	137	21	6.3	412	129.2	Yes
150	Jul 21	20:56	51.1633	128.8143	108	19	5.3	320	49.1	Yes
151	Jul 22	06:05	51.1180	128.6438	115	21	5.9		1692.0	Yes
152	Jul 22	07:08	51.1235	128.6030	130	19	6.1	402	1521.9	Yes
153	Jul 22	08:28	51.0993	128.4512	157	20	6.0	503	573.2	Yes
154	Jul 22	09:38	51.1070	128.3625	181	21	6.3	549	382.8	Yes
155	Jul 22	11:14	51.1373	128.2937	172	20	6.1	503	528.2	Yes
156	Jul 22	12:47	51.2222	128.3300	115	11	5.6	338	86.1	No
157	Jul 22	14:28	51.0843	128.2153	163	21	6.1	503	885.8	Yes
158	Jul 22	16:09	51.0447	128.3853	119	21	6.8	384	443.2	Yes
159	Jul 22	17:46	50.9582	128.2968	84	22	6.4	366	379.9	Yes
160	Jul 24	06:11	51.0067	128.5487	83	21	6.0	338	281.1	Yes
161	Jul 24	07:33	51.0143	128.6475	68	22	5.6	274	350.1	Yes
162	Jul 24	08:16	51.0285	128.6825	65	21	6.3	284	59.9	Yes
163	Jul 24	09:56	51.0875	128.8492	71	20	5.4	274	505.3	Yes
164	Jul 24	12:09	51.0772	128.8930	76	12	5.0	274	60.5	No
165	Jul 24	13:22	51.1238	128.9550	110	21	5.4	366	153.4	Yes
166	Jul 24	15:26	51.2568	128.9283	209	23	5.0	622	384.1	Yes
167	Jul 24	16:24	51.2573	128.9862	210	21	5.4	622	306.0	Yes
168	Jul 24	17:35	51.2748	128.9615	220	21	6.2	622	742.8	Yes
169	Jul 24	21:11	51.3498	128.2185	115	20	5.9	338	236.4	Yes
170	Jul 25	06:21	51.2072	129.2677	293	23	5.4	777	859.9	Yes
171	Jul 25	08:57	51.0293	129.2820	169	21	6.4	494	519.3	Yes
172	Jul 25	10:19	50.9853	129.3755	187	20	5.1	503	345.0	Yes
173	Jul 25	11:23	50.9668	129.3688	182	22	5.1	503	264.7	Yes
174	Jul 25	13:03	50.9583	129.2482	143	20	5.8	439	165.7	Yes
175	Jul 25	14:44	50.9375	129.3817	178	9	5.7	457	52.4	No
176	Jul 25	19:23	51.0128	129.3527	187	21	5.4	503	644.1	Yes
177	Jul 25	21:06	51.0992	129.2662	182	19	5.6	457	1867.0	Yes
178	Jul 26	06:08	51.0452	129.1390	136	17	5.7	412	126.0	Yes
179	Jul 26	07:46	50.9540	129.0775	90	20	5.7	320	196.4	Yes
180	Jul 26	09:31	50.8908	129.0378	57	21	5.2	229	30.2	Yes
181	Jul 26	10:17	50.9238	128.9827	60	21	5.0	229	16.9	Yes
182	Jul 26	11:02	50.9193	128.9037	81	17	5.2	320	187.7	Yes
183	Jul 26	12:28	50.9553	128.8183	71	4	7.5	293		No
184	Jul 28	06:21	51.0373	128.5385	93	22	4.9	366	297.0	Yes
185	Jul 28	07:19	51.0870	128.5892	107	19	4.9	329	426.0	Yes
186	Jul 28	09:28	50.9422	128.6592	70	22	5.6	274	56.9	Yes
187	Jul 28	10:37	50.9752	128.7282	75	21	5.4	274	88.0	Yes
188	Jul 28	11:42	50.9862	128.7278	71	20	6.2	274	37.9	Yes
189	Jul 28	14:58	51.1422	129.2810	217	20	4.4	594	539.2	Yes
190	Jul 28	17:35	51.1740	129.5692	281	10	4.6	732		No
191	Jul 28	20:03	51.2722	129.5045	260	21	5.2	640	447.1	Yes
192	Jul 29	06:21	52.2205	130.5738	182	17	4.9	457	19.1	No
193	Jul 29	07:30	52.2362	130.5303	180	20	6.1	457	330.7	Yes
194	Jul 29	09:16	52.2505	130.7820	177	20	5.1	457	181.6	Yes
195	Jul 29	10:13	52.2280	130.8137	185	19	5.6	457	348.4	Yes
196	Jul 29	11:28	52.2622	130.8417	179	20	5.8	457	505.3	Yes
197	Jul 29	12:33	52.2920	130.8342	170	21	5.2	457	200.7	Yes

Tow	Date	Time	Latitude	Longitude	Depth (m)	Duration (min)	Speed (km/h)	Warp (m)	Catch (kg)	Usable?
198	Jul 29	13:38	52.3010	130.8312	158	18	5.6	412	239.4	Yes
199	Jul 29	14:33	52.3527	130.8227	134	22	5.4	412	51.8	Yes
200	Jul 29	15:22	52.3667	130.8907	133	20	6.1	412	374.0	Yes
201	Jul 29	16:38	52.4205	130.8733	115	19	5.7	366	231.1	Yes
202	Jul 29	19:24	52.4108	131.0112	116	20	5.4	366	55.6	Yes
203	Jul 29	20:36	52.4187	130.9088	111	21	6.0	366	275.2	Yes
204	Jul 30	06:29	52.3787	131.0167	123	19	5.3	366	412.8	Yes
205	Jul 30	07:50	52.2678	130.9595	165	20	5.2	457	661.8	Yes
206	Jul 30	08:55	52.2597	130.8872	188	21	5.4	476	496.6	Yes
207	Jul 30	10:16	52.2008	130.8997	207	19	4.6	622	834.9	Yes
208	Jul 30	13:29	52.0310	131.2733	238	18	5.3	658	356.5	Yes
209	Jul 30	14:36	52.0253	131.3143	305	21	5.2	823	485.2	Yes
210	Jul 30	18:43	51.9943	130.7238	268	21	5.8	732	269.5	Yes
211	Jul 30	19:59	52.0528	130.6867	262	21	5.7	732	265.8	Yes
212	Jul 30	21:20	52.0837	130.5860	215	23	6.2	604	215.2	Yes
213	Jul 31	06:26	51.6893	129.8630	332	19	5.8	823	151.2	Yes
214	Jul 31	07:32	51.6368	129.8492	274	23	5.2	777	889.9	Yes
215	Jul 31	09:39	51.6342	129.9358	225	21	4.7	823	254.9	Yes
216	Jul 31	11:12	51.6260	130.0278	343	22	4.8	869	319.3	Yes
217	Jul 31	15:21	51.2432	129.9433	327	18	4.9	732	1132.5	Yes
218	Jul 31	17:12	51.2190	129.9270	323	2		768	7.2	No
219	Aug 02	06:25	51.2298	129.9587	318	20	5.5	823	730.7	Yes
220	Aug 02	07:53	51.2077	129.9138	429	20	5.0	914	335.8	Yes
221	Aug 02	09:17	51.2178	130.0178	480	21	4.9	988	205.0	Yes
222	Aug 02	10:25	51.2457	130.0247	438	21	5.0	988	544.3	Yes
223	Aug 02	11:31	51.2797	130.0525	411	12	5.3	988	314.5	No
224	Aug 02	12:31	51.2852	130.0572	401	22	5.0	914	655.7	Yes
225	Aug 02	14:07	51.3518	130.0425	301	22	5.4	777	745.0	Yes
226	Aug 02	15:10	51.3868	130.0138	317	19	5.7	777	1212.5	Yes
227	Aug 02	17:07	51.4612	129.9172	238	19	4.8	594	332.3	Yes
228	Aug 02	20:29	51.5163	130.1797	439	19	5.2	914	261.6	Yes
229	Aug 03	06:40	51.8843	129.8635	144	20	5.9	412	296.0	Yes
230	Aug 03	08:16	51.9413	129.9077	128	14	5.7	366	69.5	No
231	Aug 03	09:28	51.9345	129.8983	127	7	4.6	366	46.0	No
232	Aug 03	11:46	52.0022	130.1377	155	19	6.6	384	55.9	Yes
233	Aug 03	12:16	52.0327	130.1547	158	5	3.9	412		No
234	Aug 03	13:01	52.0353	130.1555	162	19	4.6	457	226.6	Yes
235	Aug 03	15:57	51.9612	130.2225	188	20	5.0	457	157.9	Yes
236	Aug 03	16:41	51.9398	130.2253	197	19	5.5	457	41.2	Yes
237	Aug 03	17:47	51.8913	130.2268	199	8	4.6	457	14.4	No
238	Aug 03	19:08	51.8963	130.3450	221	19	5.8	503	229.8	Yes
239	Aug 03	20:44	51.9623	130.4680	434	20	4.7	914	426.2	Yes
240	Aug 04	06:13	52.1275	130.5952	203	1	7.3	503	1.0	No
241	Aug 04	07:56	51.9798	130.5983	288	20	6.2	732	148.0	Yes
242	Aug 04	09:13	51.9235	130.6357	281	19	5.2	732	640.0	Yes
243	Aug 04	10:09	51.9075	130.6823	338	12	6.2	777	221.6	No
244	Aug 04	11:19	51.8988	130.6775	343	19	5.9	777	578.3	Yes
245	Aug 04	13:09	51.7975	130.7235	290	10	6.1	750	291.1	No
246	Aug 04	14:21	51.8345	130.6390	294	22	4.6	732	4585.0	Yes
247	Aug 04	16:46	51.7015	130.7518	285	19	5.7	768	1364.3	Yes

Tow	Date	Time	Latitude	Longitude	Depth (m)	Duration (min)	Speed (km/h)	Warp (m)	Catch (kg)	Usable?
248	Aug 04	18:24	51.8013	130.7055	300	17	5.8	750	1377.4	Yes
249	Aug 04	20:36	51.8187	130.4713	272	15	6.0	686	463.0	Yes
250	Aug 05	06:28	51.8847	129.8100	143	21	6.1	402	236.9	Yes
251	Aug 05	07:41	51.8223	129.9257	155	11	6.7	366	1017.0	Yes
252	Aug 05	09:17	51.7618	129.8487	336	20	4.9	777	154.9	Yes
253	Aug 05	11:18	51.8252	130.0465	185	20	5.2	457	812.6	Yes
254	Aug 05	12:44	51.7653	130.0263	212	19	5.5	512	5917.6	Yes
255	Aug 05	15:29	51.6905	130.2298	238	6	4.8	640	386.2	No
256	Aug 05	16:01	51.6818	130.2445		1	6.2		2.0	No
257	Aug 05	16:47	51.6718	130.2477	311	19	5.0	732	1060.3	Yes
258	Aug 05	19:02	51.6700	130.3978	285	20	5.6	686	564.1	Yes
259	Aug 05	19:59	51.6315	130.4272	432	4	4.8	914	55.5	No
260	Aug 05	20:56	51.6272	130.4377	443	15	4.9	869	200.2	Yes
261	Aug 06	06:29	51.7352	130.0812	262	20	5.6	640	960.4	Yes
262	Aug 06	07:37	51.6937	130.1193	315	19	6.3	732	414.3	Yes
263	Aug 06	09:25	51.6023	129.9938	298	12	4.9	594	398.3	No
264	Aug 06	10:18	51.6135	129.9920	329	19	4.7	640	144.2	Yes
265	Aug 06	12:38	51.6747	129.7457	236	20	5.2	521	259.6	Yes
266	Aug 06	14:23	51.7092	129.5932	148	20	6.2	366	826.7	Yes
267	Aug 06	15:11	51.7383	129.5612	187	20	5.7	457	789.3	Yes
268	Aug 06	16:15	51.7840	129.6137	267	19	4.9	640	429.5	Yes
269	Aug 06	18:18	51.7817	129.4185	135	19	5.5	366	459.4	Yes
270	Aug 06	19:25	51.7463	129.3300	99	21	5.9	366	104.8	Yes
271	Aug 06	20:07	51.7443	129.3270	99	20	5.2	366	78.7	No
272	Aug 07	06:34	51.4988	129.6733	154	19	5.2	366	352.2	Yes
273	Aug 07	07:15	51.4597	129.6453	161	2	4.8	412	20.7	No
274	Aug 07	08:53	51.3372	129.6808	203	19	4.6	503	774.4	Yes
275	Aug 07	11:07	51.3693	129.3497	143	19	4.8	366	774.6	Yes
276	Aug 07	12:28	51.2955	129.3502	278	21	5.5	686	468.6	Yes
277	Aug 07	13:33	51.2992	129.2400	265	19	5.6	686	912.9	Yes

## APPENDIX B: CATCH BY TOW

<b>Species</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
Aleutian skate										
Arrow tooth flounder	1433.17	444.60				319.10	38.10	312.20	273.40	183.70
Big skate						2.20				
Blackbelly eelpout	0.11	6.00						0.50	2.70	0.22
Blackfin sculpin										
Bocaccio										
Canary rockfish							4.00		2.70	3.30
Curfin sole			0.70	1.70	1.50					
Darkblotched rockfish										
Dover sole	95.26	109.00				5.00	1.30	6.50	6.40	9.90
English sole	0.90	1.70	0.80	0.30		9.80	17.40	21.40		
Eulachon										
Flathead sole	18.51	25.70					0.30	23.40	25.50	7.20
Greenstriped rockfish	0.60	11.50						2.50		
Harlequin rockfish										
Kelp greenling										
Lingcod			2.70	8.00						4.10
Longnose skate						5.50		1.40	6.70	6.50
Longspine thornyhead										
Pacific cod		0.50					12.20	7.80		
Pacific hake										2.60
Pacific halibut			6.10	45.20	41.80					
Pacific ocean perch		0.50								24.10
Pacific sand lance										
Pacific sanddab			18.30	3.80	0.01	174.20				
Pacific tomcod										
Petrale sole		0.80		1.70		4.60	1.90			0.90
Quillback rockfish							0.80			
Redbanded rockfish							2.90			1.90
Redstripe rockfish							2.00			
Rex sole	64.11	85.90		0.30		18.20	4.30	12.40	5.80	2.80
Rosethorn rockfish										
Rougheye rockfish										
Sablefish	8.58	13.60						10.10	2.20	1.60
Sandpaper skate						0.90				
Sharpchin rockfish										0.70
Shortraker rockfish										
Shortspine thornyhead										
Silvergray rockfish		2.00					0.90		57.90	187.80
Slender sole	1.58	1.40						0.90	1.30	2.10
Southern rock sole			2.30	20.30	11.10					
Spiny dogfish			65.20	17.40	26.40	19.80	10.90	40.00	16.60	13.50
Splitnose rockfish										
Spotted ratfish	2.17	6.20			7.10	1.50	13.90	4.70	7.30	5.90
Walleye pollock	19.19	7.80								6.20
Widow rockfish										
Wolf eel										
Yellow eye rockfish							23.60	3.70		
Yellow mouth rockfish										
Yellow tail rockfish		2.10							8.70	15.20
Other	1.17	2.05	2.32	2.00		2.80	8.35	1.90	4.25	8.11
Total	1645.35	721.35	95.72	95.40	95.91	563.60	142.85	449.40	421.45	488.33

Species	11	12	13	14	15	16	17	18	19	20
Aleutian skate										
Arrowtooth flounder	32.20	352.86	16.70	68.10	14.20	30.40	4.10	10.60	80.80	121.50
Big skate										
Blackbelly eelpout				0.70	0.60				0.80	2.66
Blackfin sculpin									0.20	
Bocaccio		321.15								
Canary rockfish										
Curfin sole										
Darkblotched rockfish			3.50							0.80
Dover sole	6.50	4.69		0.80						1.14
English sole	2.70	1.17					1.90		0.02	
Eulachon	0.14			5.30	2.70	0.30			3.40	0.20
Flathead sole	12.10	8.88	0.80	1.00	0.10					39.70
Greenstriped rockfish	0.50	9.47				2.10	0.80			
Harlequin rockfish										
Kelp greenling										
Lingcod										
Longnose skate	10.10	37.36	3.80	26.30	29.40			3.90	11.60	5.80
Longspine thornyhead										
Pacific cod	33.90	89.30		12.80	3.60	42.30	5.00	1.20		1.00
Pacific hake			3.90	16.80	7.90	0.80		7.30	1.20	2.50
Pacific halibut										
Pacific ocean perch	0.50	5.24	1.40	1.80	0.50	5.50	1.90	0.30	0.40	0.10
Pacific sand lance										
Pacific sanddab										
Pacific tomcod										
Petrale sole										
Quillback rockfish										
Redbanded rockfish	0.80		1.70	4.80	1.00	4.00	1.40		3.90	
Redstripe rockfish										
Rex sole	2.50	2.35					3.40	4.20	0.30	0.10
Rosethorn rockfish				0.40			1.20			
Rougheye rockfish			2.70		1.10					
Sablefish		7.04		6.90		0.60	0.70			3.90
Sandpaper skate										
Sharpchin rockfish		1.25		0.50		0.50	1.60	0.40	0.01	
Shortraker rockfish										
Shortspine thornyhead										
Silvergray rockfish	4.90	2.49		2.60		9.60	1.90			
Slender sole	0.18	0.17			1.10	0.20			0.30	1.60
Southern rock sole										
Spiny dogfish	17.80	49.09	5.70	2.30	4.30	6.00	9.20	16.90	4.50	
Splitnose rockfish										
Spotted ratfish	9.70	7.04	11.70	17.80	8.60	1.50	0.80	0.60	1.80	0.20
Walleye pollock	0.50	9.22	4.70	1.10	4.20	0.40	0.60			
Widow rockfish										
Wolf eel										
Yelloweye rockfish		16.96				8.30				
Yellowmouth rockfish										
Yellowtail rockfish		879.17					2.30		1.70	4.50
Other	11.23	10.89	14.93	55.20	10.70	5.70	10.70	6.60	11.22	9.54
Total	146.25	1815.79	71.53	225.20	90.00	124.70	45.20	48.10	121.95	207.34

Species	21	22	23	24	25	26	27	28	29	30
Aleutian skate									6.40	
Arrowtooth flounder	8.50	186.90	19.00	17.60	78.20	21.40	5.70	12.50	8.40	2.50
Big skate										
Blackbelly eelpout		0.30			0.01					0.14
Blackfin sculpin										
Bocaccio										
Canary rockfish										
Curlfin sole	4.60									
Darkblotched rockfish			1.20							
Dover sole	3.60	15.20			14.90	54.20	70.00	55.80	4.80	7.90
English sole	166.90	4.40			7.80	5.40	1.60	2.80	9.10	0.30
Eulachon					3.40	6.00	1.20	0.50	2.40	2.60
Flathead sole	1.70			0.90						
Greenstriped rockfish										
Harlequin rockfish										
Kelp greenling										
Lingcod			32.64							
Longnose skate	25.70	15.10			6.80	4.40			5.80	
Longspine thornyhead					0.20					
Pacific cod	10.20	17.90	3.68	4.30			1.50			0.86
Pacific hake		45.60			1.80		27.40	6.60	0.80	
Pacific halibut			2.60	16.60						
Pacific ocean perch		0.70	1.20	2.90	1.10	5.50	8.90	3.60	9.20	95.00
Pacific sand lance										
Pacific sanddab	161.80									
Pacific tomcod	19.50									
Petrale sole	5.30	5.60		8.40						
Quillback rockfish					0.80	4.10	7.80	0.90		3.60
Redbanded rockfish			0.10							
Redstripe rockfish			0.60	5.80	3.10	6.40	7.50	7.40	7.60	12.20
Rex sole	8.60	17.50								
Rosethorn rockfish					7.10	10.20	56.80	73.20	2.10	
Rougheye rockfish					1.10					
Sablefish	2.60									
Sandpaper skate										
Sharpchin rockfish			1.10							
Shortraker rockfish										
Shortspine thornyhead					0.60		2.20	4.00	2.40	0.50
Silvergray rockfish				9.30						4.30
Slender sole		0.90			0.30		0.20	0.30	0.84	0.80
Southern rock sole										
Spiny dogfish	26.80	1.80	6.98	4.40	0.80	3.70	8.20	6.10	2.60	3.30
Splitnose rockfish										
Spotted ratfish	85.70	9.80	1.12	4.30			0.98	1.60		
Walleye pollock		53.90								0.28
Widow rockfish										
Wolf eel										
Yelloweye rockfish			13.47	1.40						
Yellowmouth rockfish										
Yellowtail rockfish		38.70		1.10	0.50					
Other	13.79	4.00	1.50	10.60	13.10	6.92	6.06	5.32	2.96	3.06
Total	545.29	418.30	84.09	88.70	141.41	128.72	206.04	181.70	65.40	137.34

Species	31	32	33	34	35	36	37	38	39	40
Aleutian skate										
Arrowtooth flounder	0.40		0.20	0.90	89.90	25.20	88.00	13.24	1.70	6.80
Big skate								0.04		
Blackbelly eelpout									0.12	
Blackfin sculpin										
Bocaccio										
Canary rockfish		3.60	5.90							
Curtfin sole										
Darkblotched rockfish										
Dover sole	9.20				7.90	4.80				
English sole			0.60					0.20		
Eulachon										
Flathead sole	0.40								0.54	0.40
Greenstriped rockfish										
Harlequin rockfish										
Kelp greenling										
Lingcod		14.80								
Longnose skate	10.50					13.20	7.60			6.50
Longspine thornyhead										
Pacific cod	1.30				3.60				1.40	14.90
Pacific hake	4.00				6.30		0.60		1.30	
Pacific halibut		11.14						3.60	59.78	7.60
Pacific ocean perch	29.90	5.20								40.38
Pacific sand lance										
Pacific sanddab										
Pacific tomcod										
Petrale sole		1.20								
Quillback rockfish			1.10	1.40						
Redbanded rockfish	3.20					1.40	1.10	35.57	3.80	2.70
Redstripe rockfish			0.50	13.20	0.30					
Rex sole	5.38				3.60	1.60			2.80	6.08
Rosethorn rockfish								7.57		
Rougheye rockfish					0.14			1.14		
Sablefish	0.90				2.80	5.30	5.30			
Sandpaper skate								57.89	0.80	0.20
Sharpchin rockfish		0.10								
Shortraker rockfish									3.03	
Shortspine thornyhead	4.20	0.30		1.60	0.80	2.60				2.20
Silvergray rockfish										0.31
Slender sole	1.20									
Southern rock sole			0.80	0.46						
Spiny dogfish		1.70		6.90	31.50	6.50	12.90		0.86	1.80
Splitnose rockfish										
Spotted ratfish	0.56	31.40	0.50		0.56	0.70	4.50	4.16		2.50
Walleye pollock	10.60								1.10	4.20
Widow rockfish										
Wolf eel								4.40		
Yelloweye rockfish				2.90						
Yellowmouth rockfish								35.95		
Yellowtail rockfish					1.50	1.80				
Other	8.30	2.50	3.70	0.40	15.62	9.80	13.54	13.93	5.32	21.18
Total	90.04	71.94	14.90	28.46	166.62	68.50	137.34	232.30	31.74	110.15

Species	41	42	43	44	45	46	47	48	49	50
Aleutian skate										
Arrowtooth flounder	11.20	19.90		49.10		71.00	26.70	0.56	107.30	76.20
Big skate							35.00			
Blackbelly eelpout										
Blackfin sculpin		0.10								
Bocaccio										
Canary rockfish						4.20	6.80	1.80	1.80	
Curlfin sole								0.99		
Darkblotched rockfish										
Dover sole	0.36	6.80		4.40	20.57	2.80	2.40		89.80	27.20
English sole					12.66	2.40	39.40	0.89		31.00
Eulachon										
Flathead sole								7.90		
Greenstriped rockfish	2.10	17.60	2.80	3.10	10.33		3.20	0.66		
Harlequin rockfish										
Kelp greenling										
Lingcod			4.60			26.20	9.60	32.20		6.50
Longnose skate				4.50		4.70	48.20		2.80	10.10
Longspine thornyhead										
Pacific cod	1.60	14.90		4.90			2.50			3.50
Pacific hake	2.80	2.90		2.60	2207.79				10.10	
Pacific halibut						2.30		6.58		18.80
Pacific ocean perch	6.80	23.80	0.40	0.59	119.19					12.60
Pacific sand lance							45.10			
Pacific sanddab										
Pacific tomcod										
Petrale sole		10.60		34.36		3.90		67.66	18.90	12.10
Quillback rockfish										
Redbanded rockfish	0.70	2.90	1.40	1.80	12.71				5.20	5.00
Redstripe rockfish		0.30								
Rex sole	13.40	10.90	0.50	16.90	25.32	6.70	11.30		10.30	15.70
Rosethorn rockfish		1.50		0.47						
Rougheye rockfish										
Sablefish	1.70	1.90							3.50	1.30
Sandpaper skate										
Sharpchin rockfish	0.36	0.90	2.00	1.30					0.66	
Shortraker rockfish										
Shortspine thornyhead										
Silvergray rockfish	1.60		2.20	4.90	19.86	2.20	36.40	7.30		
Slender sole							0.30		0.20	0.30
Southern rock sole								0.54		
Spiny dogfish	7.90	7.80		2.90	12.66	43.40	49.70		0.80	1.05
Splitnose rockfish										
Spotted ratfish	0.60	6.70	0.70	2.20		12.90	10.60	19.50	4.20	3.20
Walleye pollock	1.50	0.40	0.50	1.60						1.20
Widow rockfish										
Wolf eel										
Yelloweye rockfish	4.80			1.20			3.70			4.80
Yellowmouth rockfish									1.60	1.10
Yellowtail rockfish					38.14					
Other	18.32	3.10	2.70	2.35		1.60	1.30	1.24	5.10	3.50
Total	75.74	133.00	17.80	139.17	2479.23	184.30	332.20	139.92	270.16	236.15

Species	51	52	53	54	55	56	57	58	59	60
Aleutian skate										
Arrowtooth flounder	611.70	54.35	38.98		92.90	187.50	130.80	206.20	16.20	45.20
Big skate			4.70	43.80						
Blackbelly eelpout		57.67			21.80		12.40	17.50		0.50
Blackfin sculpin										
Bocaccio										
Canary rockfish										
Curfin sole										
Darkblotched rockfish									2.70	
Dover sole		36.70	18.80		31.50	55.28	88.90	154.50	56.30	80.90
English sole	2.40	0.54	16.56	5.60						
Eulachon		3.17	1.39		0.78	0.40	1.12		0.01	
Flathead sole		90.50	28.60		57.10	26.70	28.40	5.20	4.50	9.80
Greenstriped rockfish	2.50		0.62							
Harlequin rockfish										
Kelp greenling										
Lingcod	10.20				5.95		2.98			
Longnose skate		27.60	7.10		5.30	21.00	8.80	24.58	10.70	
Longspine thornyhead										
Pacific cod	192.00						1.90	0.10	0.44	6.20
Pacific hake		58.40	239.45		51.80	545.20	4.80	31.80	1.01	
Pacific halibut			3.14	12.70			4.80			
Pacific ocean perch	0.30	0.44			2.90	4.72	25.10	1.10	309.60	209.50
Pacific sand lance					5.40	0.40				
Pacific sanddab					12.80	0.60				
Pacific tomcod										
Petrale sole	2.60									0.40
Quillback rockfish										
Redbanded rockfish					2.20	0.70	17.80	5.96	43.10	26.40
Redstripe rockfish										
Rex sole	1.40	7.60	10.70		9.50	2.38	8.20	14.04	10.60	21.20
Rosethorn rockfish										
Rougheye rockfish		0.30			0.78	1.88	3.56	0.30	63.79	23.50
Sablefish		3.00	3.15		5.30	7.20	9.18	9.60	6.80	6.90
Sandpaper skate								0.40		
Sharpchin rockfish										
Shortraker rockfish										
Shortspine thornyhead						12.50	13.40	12.10	15.20	17.40
Silvergray rockfish	1.80									3.40
Slender sole	0.50	5.12	3.38		3.00	0.50	4.29	6.20	0.48	
Southern rock sole				15.20						
Spiny dogfish	2.80	6.99	7.10	11.70	12.50	5.00	10.80	9.50		0.30
Spltnose rockfish										
Spotted ratfish		13.60	5.30		10.20	4.40	3.78	6.80	1.20	1.90
Walleye pollock			0.10							
Widow rockfish										
Wolf eel										
Yelloweye rockfish				12.55						
Yellowmouth rockfish		4.30								
Yellowtail rockfish										
Other	1.40	10.06	3.99		5.50	19.43	4.48		3.37	4.90
Total	833.90	376.04	405.61	107.20	321.02	894.79	385.49	505.48	546.40	458.40

Species	61	62	63	64	65	66	67	68	69	70
Aleutian skate		6.80								
Arrowtooth flounder	180.12	694.24	64.50	2.10	27.20	22.98	61.90	179.21	13.90	
Big skate									1.80	12.60
Blackbelly eelpout			9.36				0.10	32.14		
Blackfin sculpin										
Bocaccio										
Canary rockfish				11.80						0.50
Curtfin sole									2.80	
Darkblotched rockfish										
Dover sole	67.26	49.58	7.30		0.46	0.34	8.80	98.86	0.40	
English sole	0.34	0.76	9.64	35.28	20.90	12.20	8.80		136.40	
Eulachon			11.80				0.70	121.57		
Flathead sole	26.50	60.82	105.58	0.60			6.10	526.11		
Greenstriped rockfish	0.26	16.06					1.80			
Harlequin rockfish										
Kelp greenling										3.20
Lingcod		19.88	6.44	33.40	22.40	12.00			9.20	45.30
Longnose skate	17.90	7.16	2.26					35.81		
Longspine thornyhead										
Pacific cod		4.52	24.30		0.30	2.96	13.40	17.82		
Pacific hake		2.78	7.64							
Pacific halibut		16.30		17.18	4.10	3.84			2.70	2.50
Pacific ocean perch	186.28	583.20	0.32							
Pacific sand lance					20.90	42.20	45.00		15.40	4.20
Pacific sanddab						1.00	0.80			
Pacific tomcod										
Petrale sole		0.82	1.10	16.40	16.50	8.50				
Quillback rockfish			1.70	1.10						42.80
Redbanded rockfish	6.00	13.94								
Redstripe rockfish	3.70	12.75	0.12				0.80			0.20
Rex sole	1.60	17.60	13.20	3.60	10.90	4.20	27.50	7.69	4.80	
Rosethorn rockfish		4.40								
Rougheye rockfish				5.18						
Sablefish										
Sandpaper skate										
Sharpchin rockfish	0.20	13.90								
Shortraker rockfish										
Shortspine thornyhead	0.30	1.16								
Silvergray rockfish	3.60	12.50	0.72							
Slender sole		0.70	2.50		3.20	0.30	1.10	1.05		
Southern rock sole				2.20	1.60	1.10		287.20	509.24	
Spiny dogfish		5.84	3.89	1.70	3.50		3.60	0.87	2.30	6.40
Splitnose rockfish										
Spotted ratfish	0.22	7.80	17.88	11.30	14.50	11.20	1.40	111.96	0.80	38.30
Walleye pollock			28.50	0.30	2.00		5.90	9.61		
Widow rockfish										
Wolf eel										4.10
Yelloweye rockfish		3.50		3.50						4.20
Yellowmouth rockfish		43.14								
Yellowtail rockfish				0.60						
Other	0.26	19.90	13.38	8.70	0.60	0.40	21.48	9.95	4.90	3.19
Total	494.54	1620.05	337.31	170.66	171.36	125.82	163.48	1152.65	482.60	676.73

Species	71	72	73	74	75	76	77	78	79	80
Aleutian skate										
Arrowtooth flounder										
Big skate	2.20		15.70	6.60		9.50	22.10			
Blackbelly eelpout										
Blackfin sculpin										
Bocaccio										
Canary rockfish										
Curtail sole	0.60		0.30		0.50					
Darkblotched rockfish										
Dover sole										
English sole										
Eulachon										
Flathead sole										
Greenstriped rockfish										
Harlequin rockfish										
Kelp greenling									0.60	
Lingcod		2.10				4.00				
Longnose skate		3.50			3.10					
Longspine thornyhead										
Pacific cod										
Pacific hake										
Pacific halibut	7.40				27.20	17.80	25.10			
Pacific ocean perch										
Pacific sand lance			0.10	18.70			5.70	0.50		
Pacific sanddab	0.70				0.60	6.00				
Pacific tomcod										
Petrale sole									2.00	1.40
Quillback rockfish			2.90		8.60					
Redbanded rockfish						11.90				
Redstripe rockfish									0.90	
Rex sole										
Rosethorn rockfish										
Rougheye rockfish										
Sablefish										
Sandpaper skate										
Sharpchin rockfish										
Shortraker rockfish										
Shortspine thornyhead										
Silvergray rockfish										
Slender sole										
Southern rock sole	3.40		18.70	10.70	3.70	4.10	9.30		4.80	
Spiny dogfish	7.50		371.00	2195.60	43.00	14.60	294.30	8.60	2.30	
Splitnose rockfish										
Spotted ratfish	1.10				29.90	5.80			4.90	14.10
Walleye pollock									3.70	
Widow rockfish									7.00	
Wolf eel	4.30		11.30							
Yelloweye rockfish						11.60				
Yellowmouth rockfish										
Yellowtail rockfish										
Other	9.30		0.20		4.80	2.40		4.30	7.50	5.10
Total	36.50		425.80	2231.60	144.90	64.20	356.50	13.40	33.70	20.60

Species	81	82	83	84	85	86	87	88	89	90
Aleutian skate										5.20
Arrowtooth flounder	10.30	62.00	8.00	1.60	6.20	2.70	6.10	0.50	18.30	
Big skate										
Blackbelly eelpout										
Blackfin sculpin										
Bocaccio										
Canary rockfish										
Curfin sole										
Darkblotched rockfish										
Dover sole	4.20	1.80	12.00	13.90	0.80	6.90	8.90	4.60	35.90	
English sole					0.64					
Eulachon										1.20
Flathead sole			0.60							1.80
Greenstriped rockfish										
Harlequin rockfish										
Kelp greenling	0.70									
Lingcod			3.10							
Longnose skate	10.20	13.60	2.40	9.50						
Longspine thornyhead										
Pacific cod			2.00							2.40
Pacific hake				61.80	60.20	35.50	144.90	45.40	63.70	5.00
Pacific halibut							10.80			
Pacific ocean perch	1.60	168.30	80.60	58.70	27.10	25.50	58.90	56.00	342.10	
Pacific sand lance										
Pacific sanddab										
Pacific tomcod								1.00		
Petrale sole			1.00							
Quillback rockfish	2.10									
Redbanded rockfish	1.40	3.90		1.30	4.60	4.20	3.70	16.50	3.20	
Redstripe rockfish										
Rex sole	0.50	0.50	0.70	1.10	2.90	6.10	13.60	10.30	10.00	
Rosethorn rockfish										
Rougheye rockfish	1.60			20.50	4.80	0.42		10.70	1.90	
Sablefish	5.40		375.90	130.50	6.40	4.10	8.80	2.20	5.40	
Sandpaper skate										
Sharpchin rockfish										
Shortraker rockfish										
Shortspine thornyhead	2.10	1.10	3.80	34.50	16.60	23.30	32.70	46.70	4.80	
Silvergray rockfish			8.30	1.80						
Slender sole	0.50	0.20								0.20
Southern rock sole										
Spiny dogfish	53.30									3.30
Splitnose rockfish										0.20
Spotted ratfish	3.60									
Walleye pollock			11.30					1.10	0.60	2.30
Widow rockfish										
Wolf eel										
Yelloweye rockfish										
Yellowmouth rockfish										
Yellowtail rockfish			493.60							
Other	1.80	6.00	4.70	9.70	21.20	1.78	4.18	18.70	52.92	5.50
Total	61.50	43.80	776.00	556.70	353.00	107.32	234.20	198.40	269.02	443.80

Species	91	92	93	94	95	96	97	98	99	100
Aleutian skate										
Arrowtooth flounder	11.83	5.10	0.10	17.20	44.60	173.50			0.80	0.10
Big skate							2.10	1.80		
Blackbelly eelpout										
Blackfin sculpin									6.40	
Bocaccio	7.82									
Canary rockfish	80.12	57.60								
Curfin sole								0.71		
Darkblotched rockfish										
Dover sole	26.09	3.80		0.60	4.20	10.50				
English sole			5.70	14.90	14.60	39.90				1.80
Eulachon										
Flathead sole	5.75				2.60	4.30				
Greenstriped rockfish	4.13	0.60								
Harlequin rockfish										
Kelp greenling									5.40	6.50
Lingcod		11.40		4.10						
Longnose skate				4.40	10.00					
Longspine thornyhead										
Pacific cod	0.55	17.20		2.50	3.30	12.30				3.70
Pacific hake					3.10	1.50				
Pacific halibut		6.40		5.90		2.00		30.20		
Pacific ocean perch					0.40					
Pacific sand lance										
Pacific sanddab			3.20		0.98					0.30
Pacific tomcod										
Petrale sole				17.50						11.00
Quillback rockfish							4.50	12.50		
Redbanded rockfish	17.15									
Redstripe rockfish	280.09							0.20		
Rex sole	30.74	18.00	0.50	15.90	11.20	36.20				
Rosethorn rockfish		0.10								
Rougheye rockfish										
Sablefish		4.20			1.10	1.50				
Sandpaper skate										
Sharpchin rockfish		0.80								
Shortraker rockfish										
Shortspine thornyhead										
Silvergray rockfish	724.12	2.30		5.30	3.20	25.20		3.30		
Slender sole		0.50				1.70				
Southern rock sole							6.30	1.04	13.50	1.20
Spiny dogfish				3.80	4.60	3.10		131.50		
Splitnose rockfish										
Spotted ratfish		5.80		1.00	1.50	0.90	23.50	36.50	6.80	1.90
Walleye pollock	1.77	0.80		0.30	6.40	3.50				
Widow rockfish										
Wolf eel										
Yelloweye rockfish	16.94	11.20								
Yellowmouth rockfish										
Yellowtail rockfish		1.90			317.80	14.80				
Other	4.76	7.00	9.20	33.20	13.50	22.80	3.04	1.70	5.20	2.10
Total	1211.86	154.70	18.70	126.60	445.18	355.50	44.45	222.34	49.60	5.30

Species	101	102	103	104	105	106	107	108	109	110
Aleutian skate										
Arrowtooth flounder	0.12	1.70	0.30	5.10	31.20	1.60	10.20	9.50	22.60	9.60
Big skate										
Blackbelly eelpout		0.10				0.03				
Blackfin sculpin						0.10				
Bocaccio					6.50					
Canary rockfish					4.70					
Curfin sole								0.60		
Darkblotched rockfish							4.10	2.80	12.90	10.10
Dover sole		0.20		0.30		15.50				
English sole		49.40		4.80						
Eulachon										
Flathead sole					0.40					
Greenstriped rockfish					0.50					
Harlequin rockfish										
Kelp greenling										
Lingcod	3.90			4.20	3.40					3.11
Longnose skate				5.60			14.40			
Longspine thornyhead										
Pacific cod		1.00		2.40	5.40	0.90				
Pacific hake						11.50	101.80	4.80	1.20	11.80
Pacific halibut		6.60								
Pacific ocean perch	0.50	0.10				16.70	7.20	2.60	30.20	2.50
Pacific sand lance										
Pacific sanddab										
Pacific tomcod										
Petrale sole	4.00	3.40		4.70	1.70					
Quillback rockfish	18.70		2.20				12.80	3.70		1.10
Redbanded rockfish				0.60						
Redstripe rockfish	0.10									
Rex sole		13.50		15.80	1.50	6.50		2.50		2.30
Rosethorn rockfish						0.60	11.10		1.40	
Rougheye rockfish						85.10	1.40	3.20		2.80
Sablefish						2.40				
Sandpaper skate										
Sharpchin rockfish	0.10									
Shortraker rockfish						3.40	25.20			
Shortspine thornyhead						23.20	28.80	11.30	5.40	10.10
Silvergray rockfish	8.80	4.60		4.40	447.20					
Slender sole		0.40						0.10	0.40	0.40
Southern rock sole		1.10	2.20			0.20				
Spiny dogfish	1.70								1.40	0.10
Splitnose rockfish										
Spotted ratfish	3.20	0.73	6.20	4.50	1.30					
Walleye pollock					9.90	1.00				
Widow rockfish	0.30				89.30					
Wolf eel										
Yelloweye rockfish	2.40		5.00							
Yellowmouth rockfish			0.70							
Yellowtail rockfish					200.30				8.20	
Other	3.20	2.00	2.10	2.20	4.00	12.60	8.40	16.00	2.00	19.80
Total	47.02	84.83	19.30	54.00	807.30	106.63	302.40	51.60	93.70	72.61

<b>Species</b>	<b>111</b>	<b>112</b>	<b>113</b>	<b>114</b>	<b>115</b>	<b>116</b>	<b>117</b>	<b>118</b>	<b>119</b>	<b>120</b>
Aleutian skate										
Arrowtooth flounder	11.40	0.40		0.20	6.10			1.20		
Big skate										
Blackbelly eelpout										
Blackfin sculpin										
Bocaccio										
Canary rockfish										
Curfin sole										
Darkblotched rockfish										
Dover sole	7.80									
English sole										
Eulachon										
Flathead sole										
Greenstriped rockfish					0.10				0.60	
Harlequin rockfish										
Kelp greenling										
Lingcod		2.90	4.50			3.60				3.70
Longnose skate										
Longspine thornyhead										
Pacific cod										
Pacific hake										
Pacific halibut		8.80			18.60			9.60	4.20	
Pacific ocean perch	52.60									
Pacific sand lance										
Pacific sanddab		0.20		1.30	1.10	0.50	0.02			
Pacific tomcod										
Petrale sole		7.20		0.60	5.50	7.60	0.60			
Quillback rockfish			3.70							
Redband rockfish	1.50									
Redstripe rockfish	0.80		0.90							0.30
Rex sole	14.70									
Rose-thorn rockfish										0.50
Rougheye rockfish										
Sablefish										
Sancpaper skate										
Sharpchin rockfish			3.40	0.20					0.20	0.70
Shortraker rockfish										
Shortspine thornyhead	0.50									
Silvergray rockfish	6.30	5.50			3.00			8.10		2.90
Slender sole	0.40			0.05			0.30			
Southern rock sole		1.20		2.70	2.20	0.50				
Spiny dogfish					3.80					2.40
Splitnose rockfish	0.70									
Spotted ratfish		4.50	7.30	1.60	1.50	3.60	8.50	3.10	1.10	207.30
Walleye pollock	6.50									
Widow rockfish										
Wolf eel										
Yelloweye rockfish									2.30	10.60
Yellowmouth rockfish	28.50	0.10	6.60						0.50	1.30
Yellowtail rockfish	12.70									
Other	8.60	0.50	5.30	11.20	18.60	7.60	12.00	7.40	2.10	9.50
Total	153.00	28.40	30.10	22.35	60.50	23.40	31.02	24.00	9.20	236.80

Species	121	122	123	124	125	126	127	128	129	130
Aleutian skate										
Arrowtooth flounder	0.20		0.20			8.90	20.00	46.20	13.80	5.20
Big skate										
Blackbelly eelpout										
Blackfin sculpin										
Bocaccio										
Canary rockfish			204.80			568.00	246.70			
Curlfin sole										
Darkblotched rockfish										
Dover sole								17.80	11.30	7.50
English sole								26.60		
Eulachon										
Flathead sole										
Greenstriped rockfish				0.50		9.60	37.50			
Harlequin rockfish										
Kelp greenling										
Lingcod	5.20		8.10	2.60	5.50		25.80			
Longnose skate							5.10		4.60	1.40
Longspine thornyhead						22.20	48.70			
Pacific cod										
Pacific hake								23.30	22.90	0.80
Pacific halibut						3.90				
Pacific ocean perch							3.10	185.20	580.10	303.00
Pacific sand lance										
Pacific sanddab		0.20	0.30	0.10						
Pacific tomcod										
Petrale sole						1.60		0.90		
Quillback rockfish										
Redbanded rockfish								10.50	10.40	16.80
Redstripe rockfish					5.20		47.60			
Rex sole							0.30	3.60	0.70	
Rosethorn rockfish					0.10		5.20			3.10
Rougheye rockfish								1.50	5.60	10.00
Sablefish							2.60	14.00	3.90	
Sandpaper skate								0.70		
Sharpchin rockfish		1.90	0.50	1.20	1.00	8.70				
Shortraker rockfish										
Shortspine thornyhead										
Silvergray rockfish	3.90		32.20		12.30	16.80	72.50	7.60	7.20	6.20
Slender sole								1.40		0.10
Southern rock sole						0.40	6.20			
Spiny dogfish								1.10		
Splitnose rockfish										0.30
Spotted ratfish	1.00		523.54	11.60	2.50	46.00	12.40	0.10	1.10	0.50
Walleye pollock						0.40		2.20	5.50	6.40
Widow rockfish						6.30	2.80	11.80		
Wolf eel										
Yelloweye rockfish			2.90		5.20		13.90			
Yellowmouth rockfish	0.20		0.60	0.30	21.80	0.10		482.20		16.10
Yellowtail rockfish								3.60		
Other	1.10		1.60	4.00	4.80	3.90	4.70	5.12	10.10	18.70
Total	11.60		776.04	19.80	59.10	688.70	563.80	845.82	677.30	396.00

Species	131	132	133	134	135	136	137	138	139	140
Aleutian skate										
Arrowtooth flounder	9.70	17.10	0.30					195.90	7.60	
Big skate			8.30		51.00		17.70		9.40	
Blackbelly eelpout										
Blackfin sculpin										
Bocaccio										
Canary rockfish							1.20			
Curfin sole				0.30	0.40		1.90			
Darkblotched rockfish									0.50	
Dover sole	7.90	18.90						11.50	22.20	
English sole							0.50	48.90		
Eulachon										
Flathead sole									2.80	
Greenstriped rockfish									10.40	
Harlequin rockfish										
Kelp greenling							4.30			
Lingcod		2.40						2.90	2.90	9.90
Longnose skate					3.40					
Longspine thornyhead										
Pacific cod									7.40	
Pacific hake	14.60	507.40	3.10						61.80	
Pacific halibut			8.90	65.00	13.10		4.20	56.90	10.30	
Pacific ocean perch	226.20	93.70							646.60	
Pacific sand lance			0.20	0.30						
Pacific sanddab		22.70	1.10	0.04			8.90			
Pacific tomcod										
Petrale sole		3.40	4.40	3.60					7.40	
Quillback rockfish							25.90			
Redbanded rockfish	1.30								9.80	
Redstripe rockfish				3.20					1.20	
Rex sole	2.80	0.30						37.40	28.60	
Rosethorn rockfish									1.10	
Rougheye rockfish	4.60									
Sablefish		11.00							8.40	
Sandpaper skate										
Sharpchin rockfish									16.60	
Shortraker rockfish										
Shortspine thornyhead	11.40	9.50							13.40	
Silvergray rockfish								155.50		
Slender sole	0.90	0.02						3.10	2.00	
Southern rock sole			11.30	36.90	51.90		4.50	4.50		
Spiny dogfish		6.90	9.40	55.20	46.20	12465.40	26.70	151.90		
Splitnose rockfish	61.30	1.70								
Spotted ratfish			1.90	103.40	1.30			82.50	2.90	
Walleye pollock										8.40
Widow rockfish										
Wolf eel					5.20					
Yelloweye rockfish				4.10				3.20		
Yellowmouth rockfish	3.50	1.20								63.50
Yellowtail rockfish								26.60		
Other	16.82	7.52	1.20	1.30	6.40		0.30	18.80	5.70	5.60
Total	361.02	675.24	72.90	275.10	182.84	12465.40	64.70	295.20	564.10	938.10

Species	141	142	143	144	145	146	147	148	149	150
Aleutian skate										
Arrowtooth flounder	10.70	13.10	8.50	27.40	27.20	36.50	19.40	400.00	72.20	0.10
Big skate										
Blackbelly eelpout										
Blackfin sculpin										
Bocaccio										
Canary rockfish										
Curlfin sole										0.80
Darkblotched rockfish				1.60						
Dover sole	42.00	3.90	19.40	30.80	34.00			10.00	2.90	
English sole		0.60				0.30		6.00	10.40	
Eulachon										
Flathead sole		2.60								
Greenstriped rockfish		5.20				0.30	0.50			
Harlequin rockfish										
Kelp greenling										
Lingcod	8.40						12.70			5.20
Longnose skate	2.00		1.70	3.10						
Longspine thornyhead										
Pacific cod		3.90		1.50	11.30	13.20	10.20		17.80	
Pacific hake	16.60	4.00	129.50	18.00	34.00				2.40	
Pacific halibut				2.30	2.70	72.80			11.20	31.20
Pacific ocean perch	323.90	36.20	207.80	434.10	226.80					
Pacific sand lance										
Pacific sanddab										
Pacific tomcod										
Petrale sole						0.60	1.10		3.50	
Quillback rockfish										
Redbanded rockfish	4.20	0.10	14.70	2.40	45.40					
Redstripe rockfish		41.90	0.60							
Rex sole	10.50	16.90	3.10	5.20		0.90			3.10	
Rosethorn rockfish		0.10			1.80					
Rougheye rockfish	2.30		4.40	5.20	18.10					
Sablefish	5.90	17.20	11.60	179.40	6.80	6.40	13.70			
Sandpaper skate										
Sharpchin rockfish		1.70								
Shortraker rockfish										
Shortspine thornyhead	17.60		31.60	32.30	45.40					
Silvergray rockfish		1.50					6.30	7.00		
Slender sole		1.60								
Southern rock sole						0.80			3.40	9.40
Spiny dogfish		5.70								
Splitnose rockfish	15.60		0.20							
Spotted ratfish	0.40	0.50	1.90			8.30	40.20			
Walleye pollock	7.60	1.20	1.80							
Widow rockfish										
Wolf eel										
Yelloweye rockfish										
Yellowmouth rockfish	17.40	2.70	4.20	1.10	22.70					
Yellowtail rockfish										
Other	8.90	7.62	1.60	5.60	29.50	4.40	2.10	7.00	2.30	2.42
Total	494.00	168.22	442.60	747.70	505.30	74.40	179.00	430.00	129.20	49.12

Species	151	152	153	154	155	156	157	158	159	160
Aleutian skate										
Arrowtooth flounder	1511.21	1376.20	103.40	44.90	109.90	42.60	308.10	360.60	22.20	32.90
Big skate		20.70								
Blackbelly eelpout			3.60	2.40	1.70		7.40			
Blackfin sculpin					0.20					
Bocaccio										
Canary rockfish		2.00								
Curlfin sole										1.00
Darkblotched rockfish										
Dover sole		1.00	38.60	36.70	133.40	9.20	98.30			
English sole	30.14	24.50	4.50			1.70		6.70	37.30	70.20
Eulachon					0.02					
Flathead sole			5.40	1.60	10.50	4.00	15.00			
Greenstriped rockfish			0.80		4.30			4.30		
Harlequin rockfish										
Kelp greenling										
Lingcod		10.80						11.90		
Longnose skate			6.40	2.50	3.20		9.60			
Longspine thornyhead										
Pacific cod	50.23	0.90	4.90	7.80	10.40	3.40	9.50	1.50	92.20	7.50
Pacific hake				5.20			1.20			
Pacific halibut		13.60		23.90						
Pacific ocean perch			219.70	166.20	63.50		151.20			
Pacific sand lance										
Pacific sanddab	92.74							209.80	131.30	
Pacific tomcod								1.40	1.30	
Petrale sole	3.86	6.10						2.50	20.90	
Quillback rockfish										
Redbanded rockfish				1.00	0.40					
Redstripe rockfish			0.50	1.20	4.20		84.20	24.30		
Rex sole	3.86	18.90	49.90	51.00	104.30	12.00	138.70	3.60	6.10	
Rosethorn rockfish					0.40					
Rougheye rockfish										
Sablefish			4.70	1.60	26.30		35.90			
Sandpaper skate				1.00						
Sharpchin rockfish			0.10		3.60			0.20		
Shortraker rockfish										
Shortspine thornyhead										
Silvergray rockfish		34.80	24.60	4.80	3.60	1.80	1.70	0.10		
Slender sole				0.90	1.30	2.10	3.80			
Southern rock sole								0.20	1.80	
Spiny dogfish		1.20	1.10	22.60	7.00	2.10	2.70	2.10		1.90
Spltnose rockfish										
Spotted ratfish		10.40	0.20	4.10	3.00		1.60	9.90	6.70	5.80
Walleye pollock			39.10	1.00	13.60		4.50			0.20
Widow rockfish										
Wolf eel										
Yelloweye rockfish					8.20	3.40	4.40	11.90		
Yellowmouth rockfish										
Yellowtail rockfish		0.80	55.20		4.60	2.20				
Other			10.50	2.40	10.60	1.60	8.00	6.10	1.50	6.30
Total	1692.04	1521.90	573.20	382.80	528.22	86.10	885.80	443.20	379.90	281.10

Species	161	162	163	164	165	166	167	168	169	170
Aleutian skate										
Arrowtooth flounder	2.10				80.50	34.50	14.10	11.10	78.40	63.30
Big skate	2.50									
Blackbelly eelpout						0.50			0.60	
Blackfin sculpin										
Bocaccio										
Canary rockfish				5.60	4.20					
Curlfin sole	0.40									
Darkblotched rockfish										
Dover sole						26.10	19.30	14.30	6.60	59.90
English sole					0.90		6.70		45.00	
Eulachon									7.30	
Flathead sole						10.40	1.20	6.50	3.70	
Greenstriped rockfish					0.40	2.70				
Harlequin rockfish										
Kelp greenling			13.80	1.10						
Lingcod	12.10		15.40	6.70	18.70					
Longnose skate						0.30				1.10
Longspine thornyhead										
Pacific cod					33.10	20.60	3.70	12.90	19.40	1.40
Pacific hake						46.20	16.60	19.80		120.60
Pacific halibut	46.80	23.30							5.80	34.40
Pacific ocean perch					156.40	160.00	619.80			436.50
Pacific sand lance	0.40				2.50					
Pacific sanddab	4.20	0.10								13.70
Pacific tomcod										
Petrale sole	2.30					0.90				
Quillback rockfish			114.70	12.30	4.20					
Redbanded rockfish						18.30	3.80	13.70		
Redstripe rockfish		11.60	140.10	3.70						
Rex sole					0.40	35.40	60.90	23.10	37.20	15.90
Rosethorn rockfish			1.80							
Rougheye rockfish							1.20	1.40	4.70	6.80
Sablefish										8.40
Sandpaper skate										
Sharpchin rockfish										
Shortraker rockfish										
Shortspine thornyhead						10.60	2.70	5.80		36.30
Silvergray rockfish			3.40		2.70	2.20	1.30			3.10
Slender sole						0.80	0.80			3.20
Southern rock sole	279.30	17.90	17.50		1.20					
Spiny dogfish						2.80	1.90			3.60
Splitnose rockfish										
Spotted ratfish			116.50	2.60	3.70	0.70	0.20			4.80
Walleye pollock						0.90	3.50	2.40		
Widow rockfish				0.30						
Wolf eel	3.70									
Yelloweye rockfish			28.10							
Yellowmouth rockfish							7.80	3.40		
Yellowtail rockfish										
Other	3.30	54.00	28.22	0.90	4.80	4.50	8.70	0.30	11.50	
Total	350.10	59.90	505.30	60.52	153.40	384.10	306.00	742.80	236.40	859.90

Species	171	172	173	174	175	176	177	178	179	180
Aleutian skate										
Arrowtooth flounder	56.80	85.30	137.00	20.20	6.40	138.60	19.17	26.90	5.90	
Big skate										
Blackbelly eelpout	1.10	0.70		0.02		0.70		1.00		
Blackfin sculpin									0.20	
Bocaccio			3.80			8.70				
Canary rockfish					2.70	2.80	42.91			
Curlfin sole									0.50	
Darkblotched rockfish										
Dover sole	28.70	14.90	8.80	2.20	2.70	121.30	19.17	10.00	1.20	
English sole	2.70		0.30	12.50				9.80	41.70	
Eulachon				1.90						
Flathead sole	5.90	5.70	4.60	2.90		9.10		2.20		
Greenstriped rockfish	12.40	15.70	3.90	2.50	0.50	8.30	20.08	2.80		
Harlequin rockfish										
Kelp greenling										
Lingcod		19.90	12.60	4.60	15.30	10.00				
Longnose skate	2.70	6.20	4.90			5.50				
Longspine thornyhead										
Pacific cod	44.50	18.20	27.00	7.60		17.20	8.58	7.60	2.30	0.60
Pacific hake	138.50	2.30	2.30	3.90		20.10	17.15			8.40
Pacific halibut										
Pacific ocean perch		3.00	1.40			79.00	125.98			
Pacific sand lance									59.80	4.80
Pacific sanddab										
Pacific tomcod										
Petrale sole		0.70	1.80			2.90			0.10	
Quillback rockfish										
Redbanded rockfish		2.90		0.90		5.70				
Redstripe rockfish	81.40	5.90			1.30	11.70	139.68	2.10		
Rex sole	32.90	114.00	25.10	62.20	8.20	92.70	13.12	58.50	36.50	
Rosethorn rockfish						3.65				
Rougheye rockfish										
Sablefish	23.60	7.20	14.10	13.20		30.40				
Sandpaper skate										
Sharpchin rockfish					2.80	0.50	83.07			
Shortraker rockfish										
Shortspine thornyhead										
Silvergray rockfish	6.80	9.00		8.30	4.80	38.90				
Slender sole	3.40	4.80	2.60	11.80	0.82	3.50		1.50		
Southern rock sole									32.10	15.00
Spiny dogfish					6.30	1.80				
Splitnose rockfish										
Spotted ratfish	1.50		0.90	0.02		3.80				9.00
Walleye pollock						0.24			0.90	0.80
Widow rockfish										
Wolf eel										
Yelloweye rockfish										
Yellowmouth rockfish	37.90	4.40	1.70			21.70	1373.93			
Yellowtail rockfish	37.50	23.20	9.30	4.30		3.60		1.60		
Other	1.00	1.00	2.60	6.70	0.60	5.40	0.50	1.80	7.00	
Total	519.30	345.00	264.70	165.74	52.42	644.14	1866.99	126.00	196.40	30.20

Species	181	182	183	184	185	186	187	188	189	190
Aleutian skate										
Arrowtooth flounder				145.10	308.00				19.80	
Big skate				40.00						
Blackbelly eelpout										
Blackfin sculpin										
Bocaccio				7.90						
Canary rockfish		8.20		1.90						
Curtfin sole	0.20	0.20				1.50	0.60			
Darkblotched rockfish										
Dover sole				3.60	7.70				6.20	
English sole	0.10			25.60	66.90	0.02	0.50			
Eulachon										
Flathead sole									11.00	
Greenstriped rockfish										
Harlequin rockfish										
Kelp greenling										
Lingcod		15.40			2.30				8.60	
Longnose skate										
Longspine thornyhead										
Pacific cod	0.10	0.20				4.30	0.10		0.90	
Pacific hake									13.70	
Pacific halibut		15.50				5.90	44.90	10.90		
Pacific ocean perch									338.40	
Pacific sand lance		0.50								
Pacific sanddab	4.30	4.30		3.50	0.90	1.90	24.10	7.90		
Pacific tomcod										
Petrale sole				55.90	5.00				0.60	
Quillback rockfish		8.70								
Redbanded rockfish									2.90	
Redstripe rockfish		0.90								
Rex sole				2.30	9.60				21.90	
Rosethorn rockfish									3.70	
Rougheye rockfish										
Sablefish									9.80	
Sandpaper skate										
Sharpchin rockfish									31.60	
Shortraker rockfish										
Shortspine thornyhead									20.30	
Silvergray rockfish									6.90	
Slender sole										
Southern rock sole	1.30	83.20				35.60	14.20	12.90		
Spiny dogfish				3.20	2.20					
Splitnose rockfish										
Spotted ratfish	1.10	32.80		5.60	23.40	3.90	2.80	3.00	2.50	
Walleye pollock	0.20						0.10		2.90	
Widow rockfish										
Wolf eel										
Yelloweye rockfish									35.20	
Yellowmouth rockfish										
Yellowtail rockfish										
Other	9.60	17.80		2.40		3.80	0.72	2.62	2.90	
Total	16.90	187.70		297.00	426.00	56.92	88.02	37.92	539.20	

Species	191	192	193	194	195	196	197	198	199	200
Aleutian skate										
Arrowtooth flounder	8.80	0.40	20.20	4.60	2.30	7.30	10.40	32.00	14.20	21.10
Big skate										
Blackbelly eelpout										
Blackfin sculpin										
Bocaccio						4.40				
Canary rockfish						1.60				
Curfin sole					0.40					
Darkblotched rockfish										
Dover sole	37.60				2.90		31.40	24.00		0.30
English sole					7.20	2.40	12.70	1.10		0.10
Eulachon										26.50
Flathead sole										
Greenstriped rockfish		0.90	0.70	1.00					1.20	
Harlequin rockfish										
Kelp greenling										
Lingcod										
Longnose skate	19.60				1.70	4.90		9.30		7.30
Longspine thornyhead								2.40		
Pacific cod		6.30	4.10	3.30	1.60	1.40	5.00	1.40	1.90	1.20
Pacific hake	120.00				4.00	17.80	18.80	39.70	2.40	1.30
Pacific halibut						78.20			7.90	7.00
Pacific ocean perch	211.90			1.30	3.00	3.90	0.40	0.10	0.40	
Pacific sand lance										
Pacific sanddab										
Pacific tomcod										
Petrale sole					1.50	0.70	5.80	1.50		0.50
Quillback rockfish										
Redbanded rockfish					5.50	3.00		4.40		
Redstripe rockfish					0.50	38.30	1.30			
Rex sole	6.90	0.90				4.50	1.90	29.60	35.90	5.60
Rosethorn rockfish									1.70	14.40
Rougheye rockfish										
Sablefish	4.00			2.30						
Sandpaper skate										
Sharpchin rockfish		0.40			0.20					
Shortraker rockfish										
Shortspine thornyhead	27.90									
Silvergray rockfish			269.10	96.10	226.40	383.00	45.90	166.90	20.40	267.40
Slender sole	0.30				0.10		0.02			
Southern rock sole										
Spiny dogfish										
Splitnose rockfish	0.40									
Spotted ratfish	1.20	0.02	5.10					0.90	1.40	0.20
Walleye pollock		1.00	4.90	0.80	1.20	4.90	24.50		1.50	0.30
Widow rockfish										
Wolf eel										
Yelloweye rockfish										
Yellowmouth rockfish	6.40									
Yellowtail rockfish						2.30	1.90		15.60	14.80
Other	2.10	9.20	13.80	6.60	3.30	2.00	1.50	3.10	3.90	9.50
Total	447.10	19.12	330.70	181.60	348.40	505.32	200.70	239.40	51.80	374.00

Species	201	202	203	204	205	206	207	208	209	210
Aleutian skate										
Arrowtooth flounder	0.50	26.50	7.20	52.90	227.70	54.70	20.50	16.00	9.30	4.00
Big skate										
Blackbelly eelpout				0.30						
Blackfin sculpin									0.40	
Bocaccio									4.80	
Canary rockfish					2.90			5.30	2.80	
Curfin sole										6.20
Darkblotched rockfish										
Dover sole		0.90		8.20	39.90	98.90		0.70	2.20	10.50
English sole	2.10	1.50	0.40	100.40	47.50	84.10				
Eulachon										
Flathead sole					1.70					
Greenstriped rockfish								0.20		
Harlequin rockfish										
Kelp greenling										
Lingcod	4.20	3.00	5.30		11.60			31.90	13.50	
Longnose skate			15.10			6.50				4.30
Longspine thornyhead										
Pacific cod	5.40	9.10	1.80	0.50	10.80	0.70	0.50	18.10		
Pacific hake	2.50		83.40	3.70		5.80		20.60	5.20	127.70
Pacific halibut	3.20		10.90		2.60		78.90			
Pacific ocean perch	0.08				0.70	0.20	639.10	42.00	352.60	76.70
Pacific sand lance										
Pacific sanddab										
Pacific tomcod										
Petrale sole			7.30	5.70		0.20		0.60		
Quillback rockfish	0.70					2.10	9.00	5.50	14.50	8.60
Redbanded rockfish								105.80	1.70	
Redstripe rockfish										
Rex sole	0.20			134.60	170.50	127.30		1.20	2.80	19.10
Rosethorn rockfish								3.10	2.90	
Rougheye rockfish									1.40	0.02
Sablefish					0.50					1.50
Sandpaper skate								0.90		
Sharpchin rockfish								15.70	3.50	
Shortraker rockfish									10.70	
Shortspine thornyhead							2.70	3.70	20.80	8.10
Silvergray rockfish	203.30	4.20	111.50	88.80	145.00	111.10	69.10	48.10	13.80	
Slender sole				0.20	0.30	0.60		0.20		0.02
Southern rock sole	3.40	2.00	14.20							
Spiny dogfish				4.70						
Splitnose rockfish									0.50	
Spotted ratfish	1.40		12.90	0.20				0.30	7.80	
Walleye pollock		0.30		0.70			2.70	36.60	3.10	7.70
Widow rockfish										
Wolf eel										
Yelloweye rockfish										
Yellowmouth rockfish										
Yellowtail rockfish							1.70			
Other	4.10	8.05	5.20	11.90	2.30	2.18	10.70		4.70	1.30
Total	231.08	55.55	275.20	412.80	661.80	496.58	834.90	356.50	485.20	269.54

Species	211	212	213	214	215	216	217	218	219	220
Aleutian skate										
Arrowtooth flounder	11.20	5.30	10.40	11.40	18.70	13.90	4.46		6.70	7.40
Big skate										
Blackbelly eelpout					0.03					0.20
Blackfin sculpin										
Bocaccio										
Canary rockfish										
Curtfin sole										
Darkblotched rockfish					0.90			67.72		37.50
Dover sole	26.30	6.50	7.40	1.50	12.70	7.70	5.62		12.90	19.80
English sole		0.20								
Eulachon										
Flathead sole										
Greenstriped rockfish		1.20			0.40					
Harlequin rockfish										
Kelp greenling										
Lingcod		1.90								
Longnose skate	7.60		6.10	2.90	1.50					4.00
Longspine thornyhead										
Pacific cod		4.50								
Pacific hake	136.80	1.30	16.40	112.60	18.30	116.40	30.64		56.10	26.10
Pacific halibut	6.30			5.80	6.10	20.40				
Pacific ocean perch	7.20	87.70	27.10	211.20	105.70	78.10	769.50	6.70	516.70	42.10
Pacific sand lance										
Pacific sanddab										
Pacific tomcod										
Petrale sole										
Quillback rockfish										
Redbanded rockfish	6.50	1.00		10.70	4.40	12.80	5.26		1.60	
Redstripe rockfish		3.60							3.80	18.20
Rex sole	35.60	3.80		1.90	3.90	7.40			0.95	
Rosethorn rockfish				0.90			2.63		3.60	51.30
Rougheye rockfish			16.40		11.60	21.10			28.70	85.70
Sablefish	6.60	6.50	31.30	7.00	55.50	8.40	11.25			
Sandpaper skate					0.40					
Sharpchin rockfish										
Shortraker rockfish										22.60
Shortspine thornyhead	3.80	4.80	12.10	11.90	3.90	21.70	22.14	0.20	28.50	38.80
Silvergray rockfish		70.90					4.82			
Slender sole	2.90								0.30	
Southern rock sole										
Spiny dogfish										
Splinthead rockfish	0.28			343.90	2.30		81.75	0.20	1.90	
Spotted ratfish		2.20			1.30					1.30
Walleye pollock	11.30	11.50		13.40	1.20					
Widow rockfish										
Wolf eel										
Yelloweye rockfish					143.50		115.50			
Yellowmouth rockfish										
Yellowtail rockfish										
Other	3.40	2.31	24.00	9.60	7.80	11.40	11.25	0.10	30.10	19.60
Total	265.78	215.21	151.20	889.93	254.90	319.30	1132.54	7.20	730.65	335.80

Species	221	222	223	224	225	226	227	228	229	230
Aleutian skate										
Arrowtooth flounder	2.60	3.40		3.60	4.10	5.33	4.00		0.30	
Big skate										
Blackbelly eelpout										
Blackfin sculpin		0.10				2.30	0.52			
Bocaccio										
Canary rockfish									202.30	8.70
Curlfin sole										
Darkblotched rockfish						9.30	7.32	0.90		
Dover sole	17.10	30.10	16.90	57.60	22.50	5.46	29.40	7.90		
English sole										
Eulachon										
Flathead sole										
Greenstriped rockfish									1.60	0.01
Harlequin rockfish										
Kelp greenling										
Lingcod										4.50
Longnose skate					13.50					
Longspine thornyhead	4.70	5.30	0.30	1.20					22.60	
Pacific cod					2.90					4.40
Pacific hake	18.70	278.30	58.90	66.60	70.40	12.09	40.10	10.30		
Pacific halibut						4.16			4.90	23.80
Pacific ocean perch			6.30	30.20	411.90	348.05	131.00	2.90		
Pacific sand lance										0.30
Pacific sanddab										0.30
Pacific tomcod										
Petrale sole										
Quillback rockfish										
Redbanded rockfish	1.30			11.00	7.00	2.81	1.80			
Redstripe rockfish										0.90
Rex sole	8.50	23.80	11.70	27.50	12.20	8.06	37.80	2.40		
Rosethorn rockfish					0.40	5.63				
Rougheye rockfish	31.40	130.50	180.90	353.80	20.20	79.18		68.10		
Sablefish	11.40	19.60	6.70	21.70	12.10	24.06	2.10	24.90		
Sandpaper skate				1.40	0.20	1.69		1.20		
Sharpchin rockfish							19.30		0.10	0.20
Shortraker rockfish	47.80	13.50	4.90	5.70				67.00		
Shortspine thornyhead	54.00	21.50	24.90	43.60	67.10	151.98	4.20	50.30		
Silvergray rockfish							3.40		77.20	11.60
Slender sole							0.60			
Southern rock sole									3.70	0.10
Spiny dogfish										
Splitnose rockfish					70.70	525.73	0.20			
Spotted ratfish					4.10	2.60			0.30	
Walleye pollock								5.50		
Widow rockfish										
Wolf eel										
Yelloweye rockfish										17.50
Yellowmouth rockfish						13.10	3.00	50.10		
Yellowtail rockfish										
Other	7.50	18.20	3.00	18.30	14.50	24.83	1.90	4.00	0.30	2.50
Total	205.00	544.30	314.50	655.70	745.00	1212.50	332.30	261.60	296.00	69.51

Species	231	232	233	234	235	236	237	238	239	240
Aleutian skate										
Arrowtooth flounder		9.30		23.30	94.40	8.10		8.10	11.40	
Big skate										
Blackbelly eelpout								0.10		
Blackfin sculpin										
Bocaccio										
Canary rockfish		4.30								
Curfin sole										
Darkblotched rockfish					0.70			1.20	89.80	
Dover sole						0.70				
English sole										
Eulachon										
Flathead sole										
Greenstriped rockfish		1.90		3.20	5.50	5.10	0.50	1.40		
Harlequin rockfish										
Kelp greenling										
Lingcod	4.90	6.60		4.10	2.90			11.30		
Longnose skate				9.80					1.90	
Longspine thornyhead										
Pacific cod		24.10		136.30	21.80	5.70	9.50	24.80		
Pacific hake									225.10	
Pacific halibut								11.00		
Pacific ocean perch					13.10	0.70		110.00	9.90	
Pacific sand lance										
Pacific sanddab										
Pacific tomcod										
Petrale sole		1.40		5.20						
Quillback rockfish										
Redbanded rockfish								1.70		
Redstripe rockfish						1.20		16.50		
Rex sole						5.30	1.60	5.20	4.70	
Rosethorn rockfish		0.30			0.20	3.70	0.20	2.80		
Rougheye rockfish								10.30		
Sablefish								3.50	59.00	
Sandpaper skate										
Sharpchin rockfish		0.30		0.04	4.10	7.10	0.30	18.20		1.00
Shortraker rockfish										
Shortspine thornyhead						0.20		5.30	4.50	
Silvergray rockfish	20.80				3.80			2.20		
Slender sole					0.02	0.20		0.02		
Southern rock sole										
Spiny dogfish					2.70					
Splitnose rockfish										
Spotted ratfish		0.90		2.70	0.90			0.76		
Walleye pollock				0.20	0.10	0.40	1.50	4.10		
Widow rockfish										
Wolf eel										
Yelloweye rockfish	16.80	6.80		0.10	0.60					
Yellowmouth rockfish										
Yellowtail rockfish										
Other	3.50		41.70	7.04	3.50	0.80	1.60	9.56		
Total	46.00	55.90	226.64	157.86	41.20	14.40	229.78	426.16	1.00	

Species	241	242	243	244	245	246	247	248	249	250
Aleutian skate										
Arrowtooth flounder	8.40	7.50	1.00	10.40	29.60	487.60	9.19	79.60	3.80	1.10
Big skate										
Blackbelly eelpout										
Blackfin sculpin		0.20	0.60	0.90	0.90	0.30	2.97	6.76	0.60	
Bocaccio									4.80	
Canary rockfish										109.90
Curfin sole										
Darkblotched rockfish						10.40	51.71		1.20	
Dover sole	21.30	2.50	5.90	30.90	0.50	7.50	2.16	6.24	3.40	
English sole										
Eulachon										
Flathead sole										
Greenstriped rockfish										1.80
Harlequin rockfish		0.20			0.40		0.38			
Kelp greenling										
Lingcod		6.60			7.20		15.95	44.45		2.20
Longnose skate										
Longspine thornyhead										
Pacific cod	2.40	1.10							3.40	79.60
Pacific hake	2.60		8.40	88.90	1.40		20.82	4.42		
Pacific halibut		4.20				49.50				7.10
Pacific ocean perch	39.20	480.30	126.90	373.80	205.50	3961.47	1157.74	925.71	371.30	
Pacific sand lance										
Pacific sanddab										
Pacific tomcod										
Petrale sole										9.00
Quillback rockfish										
Redbanded rockfish		8.60	3.90		9.50	14.20	11.26	19.84		
Redstripe rockfish	1.20					6.30				
Rex sole	28.40	0.80	3.00	3.20						
Rosethorn rockfish					1.20		5.34	1.55	8.60	
Rougheye rockfish	1.10	3.90	1.80	0.60	0.70	3.90	17.17	83.22	0.40	
Sablefish	13.40			12.60				49.13		
Sandpaper skate				1.10				6.37		
Sharpchin rockfish	0.10				1.10		53.24		13.10	0.50
Shortraker rockfish								22.93		
Shortspine thornyhead	16.70	20.80	20.60	46.50	4.00	34.00	14.88	117.48	29.80	
Silvergray rockfish	7.30	12.80							6.10	18.00
Slender sole				0.30						
Southern rock sole										0.60
Spiny dogfish										
Splitnose rockfish		85.90	0.50						10.10	
Spotted ratfish	0.50						5.30			6.30
Walleye pollock	3.20									
Widow rockfish		2.00								
Wolf eel										
Yelloweye rockfish										3.20
Yellowmouth rockfish										
Yellowtail rockfish										
Other	2.20	2.60	49.00	9.10	29.10	4.50	1.46	9.49	3.20	0.80
Total	148.00	640.00	221.60	578.30	291.10	4584.97	1364.27	1377.39	463.00	236.90

<b>Species</b>	<b>251</b>	<b>252</b>	<b>253</b>	<b>254</b>	<b>255</b>	<b>256</b>	<b>257</b>	<b>258</b>	<b>259</b>	<b>260</b>
Aleutian skate										
Arrowtooth flounder	2.65		3.72		0.80		4.57	15.40		
Big skate										
Blackbelly eelpout								0.50		
Blackfin sculpin								6.50		
Bocaccio	10.11		3.12	17.40						
Canary rockfish	54.06		33.82							
Curfin sole								5.15	16.30	
Darkblotched rockfish								5.75	4.60	12.80
Dover sole		3.90	1.92							29.30
English sole			0.72							
Eulachon										
Flathead sole										
Greenstriped rockfish			5.12							
Harlequin rockfish	240.98									
Kelp greenling										
Lingcod	96.46			10.50						
Longnose skate				10.20						
Longspine thornyhead										6.60
Pacific cod	18.07		15.24					0.70		
Pacific hake		40.30			1.80		16.20	29.40	5.30	21.20
Pacific halibut										
Pacific ocean perch		47.40		1151.38	12.80	2.00	185.64	389.10		0.80
Pacific sand lance										
Pacific sanddab										
Pacific tomcod										
Petrale sole										
Quillback rockfish										
Redbanded rockfish		1.90		126.88	0.90		10.95	2.10		
Redstripe rockfish	232.09		584.45	488.63						
Rex sole			11.76				2.87	4.10	5.30	7.50
Rosethorn rockfish	3.31		1.67	40.49			2.25	4.50		
Rougheye rockfish		4.30							8.80	57.60
Sablefish		38.40		3.40			11.62	12.70	9.50	10.50
Sandpaper skate										
Sharpchin rockfish	32.61		84.56	1970.71	192.30		6.76			
Shortraker rockfish										26.40
Shortspine thornyhead		11.90		36.44	0.40		26.57	55.70	8.40	39.20
Silvergray rockfish	169.49		29.93	134.98				2.80		
Slender sole								0.10		
Southern rock sole										
Spiny dogfish										
Splitnose rockfish							744.50	11.90		
Spotted ratfish	8.62	1.00	1.44					0.20		
Walleye pollock			2.04							
Widow rockfish				232.17						
Wolf eel										
Yelloweye rockfish	135.49		6.12							
Yellowmouth rockfish	5.23			1685.91	177.20		36.07			
Yellowtail rockfish										
Other	7.80	5.80	27.00	8.50			1.44	7.50	5.40	1.10
Total	1016.97	154.90	812.63	5917.59	386.20	2.00	1060.34	564.10	55.50	200.20

Species	261	262	263	264	265	266	267	268	269	270
Aleutian skate										
Arrowtooth flounder	9.28	4.60	1.90	6.60	9.60	210.00	23.17	7.40	8.20	1.70
Big skate										
Blackbelly eelpout										
Blackfin sculpin										
Bocaccio							5.16			
Canary rockfish						5.00				
Curfin sole									1.90	
Darkblotched rockfish	3.59			1.10						
Dover sole	3.93	9.80	3.50	23.00	36.70	1.20	1.18	8.40		
English sole						0.80	1.06		6.50	4.00
Eulachon										
Flathead sole										
Greenstriped rockfish						2.30				
Harlequin rockfish										
Kelp greenling										
Lingcod									5.60	
Longnose skate		9.60								
Longspine thornyhead										
Pacific cod						97.00	4.61		413.30	
Pacific hake	68.90	43.20	20.40	14.40	70.80		1.65	142.60		
Pacific halibut								11.90		5.50
Pacific ocean perch	51.27	132.00	272.20	52.20	96.40	5.00	52.07	174.80		
Pacific sand lance										4.70
Pacific sanddab										
Pacific tomcod										
Petrale sole						10.80	3.19		2.70	2.80
Quillback rockfish										
Redbanded rockfish	6.67	22.10	6.30	2.20	2.20		1.56	9.20		
Redstripe rockfish					0.50	107.90	3.48			
Rex sole	8.52	6.10	5.70	20.60	4.10	3.50	7.21	0.30	4.90	
Rosethorn rockfish			0.90							
Rougheye rockfish	7.86	124.30	6.30	2.00				10.40		
Sablefish	9.61	26.10	3.70	4.70		4.00		21.70		
Sandpaper skate								1.00		
Sharpchin rockfish					0.20					
Shortraker rockfish			26.60							
Shortspine thornyhead	18.80	16.80	15.20	11.10	3.60			24.40		
Silvergray rockfish			2.60		2.00	10.60	6.12		3.90	
Slender sole		0.10		0.60	0.70					
Southern rock sole									4.80	69.50
Spiny dogfish						2.48				
Splitnose rockfish	711.85	5.50	0.80		19.80			0.70		
Spotted ratfish				0.90		1.20	0.24			9.90
Walleye pollock	4.37	4.90	0.90	2.60	5.90	0.80	0.83			
Widow rockfish			1.90			144.60				
Wolf eel										
Yelloweye rockfish										
Yellowmouth rockfish	51.10		27.80				656.65	9.60		
Yellowtail rockfish							221.00	11.28		
Other	4.64	9.20	1.60	2.20	7.10	1.00	7.33	7.10	9.50	4.80
Total	960.39	414.30	398.30	144.20	259.60	826.70	789.27	429.50	459.40	104.80

Species	271	272	273	274	275	276	277
Aleutian skate				7.43			
Arrowtooth flounder	0.50	5.10	0.90	0.33	90.70	26.40	19.51
Big skate	4.50						
Blackbelly eelpout							
Blackfin sculpin							
Bocaccio							
Canary rockfish		9.70			59.69		
Curfin sole	0.50						
Darkblotched rockfish							6.16
Dover sole		9.30	1.00	21.96	2.30	30.40	60.56
English sole	2.20	2.60			0.46		
Eulachon							
Flathead sole							
Greenstriped rockfish		1.60		17.96			
Harlequin rockfish							
Kelp greenling							
Lingcod	2.90			9.07	2.07		
Longnose skate				9.72			1.01
Longspine thornyhead							
Pacific cod		4.00			16.46		4.81
Pacific hake		48.90		11.58		28.70	8.87
Pacific halibut	17.50				8.63		12.54
Pacific ocean perch				518.03		195.20	628.19
Pacific sand lance							
Pacific sanddab	0.80						
Pacific tomcod							
Petrale sole		1.20			0.46		
Quillback rockfish							
Redbanded rockfish		1.20		3.16		6.00	23.69
Redstripe rockfish		212.80	13.50	28.20	6.02		
Rex sole		21.30	0.30	42.27	9.78	59.20	68.92
Rosethorn rockfish							
Rougheye rockfish						8.70	0.96
Sablefish						58.30	19.89
Sandpaper skate							0.76
Sharpchin rockfish			0.90	0.33			
Shortraker rockfish							
Shortspine thornyhead				1.20		42.40	29.08
Silvergray rockfish		24.70		4.90	309.97		
Slender sole		0.90		0.98			0.63
Southern rock sole	40.00						
Spiny dogfish				1.42		1.40	
Splitnose rockfish							0.58
Spotted ratfish	1.20	0.40				1.20	
Walleye pollock		1.80		12.13		0.40	5.32
Widow rockfish							
Wolf eel							
Yelloweye rockfish		2.40					
Yellowmouth rockfish				63.26			2.70
Yellowtail rockfish					263.36		
Other	8.60	4.30	4.10	20.43	4.72	10.30	18.75
Total	78.70	352.20	20.70	774.36	774.62	468.60	912.93

